federal register

Friday
May 4, 1979

Part V

Department of Agriculture

Forest Service

Proposed Guidelines for Land and Resource Management Planning in the National Forest System

DEPARTMENT OF AGRICULTURE

Forest Service

[36 CFR Part 219]

National Forest System Land and Resource Management Planning

AGENCY: Forest Service, USDA.

ACTION: Proposed rule.

SUMMARY: The Department of Agriculture proposes to issue regulations to guide land and resource management planning in the National Forest System. These rules require an integration of planning for National Forests and Grasslands, including the timber, range, fish and wildlife, water, wilderness, and recreation resources, together with resource protection activities and coordinated with fire management and the use of other resources, such as minerals. The proposed rules will implement provisions of the Forest and Rangeland Renewable Resources Planning Act of 1974, as amended by the National Forest Management Act of 1976.

DATE: Comments should pertain to the Secretary of Agriculture's proposed regulations and should cite the specific section and **Federal Register** page number. Comments must be submitted on or before July 3, 1979.

ADDRESSES: Send comments to Chief, Forest Service, USDA, P.O. Box 2417, Washington, D.C. 20013. All written submissions will be available for public review in room 4021, South Agriculture Building, 12th and Independence Avenue SW, Washington, D.C.

FOR FURTHER INFORMATION CONTACT: Charles R. Hartgraves, Director, Land Management Planning, P.O. Box 2417, Washington, D.C. 20013, 202–447–6697.

1. Purpose

The Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA) (88 Stat. 476, et seq.), as amended by the National Forest Management Act of 1976 (NFMA) (90 Stat. 2949, et seq.) (16 U.S.C. 1601–1614), specifies that an interdisciplinary approach will be used in land and resource management planning and that there will be a periodic review of the planning process, followed by any necessary amendments, to keep it current with statutory requirements. These statutes also provide for the establishment and revision of national, regional and local resource goals and objectives which are based on a periodic assessment of the future supply and demand of renewable resources from public and private forest and range lands. Achievement of these goals and objectives is the purpose of the planning process provided in these regulations. These acts also require public participation in the development, review and revision of land and resource management plans, and the coordination of such plans with State and local units of government and other Federal agencies.

These rules apply to all land and resources management plans developed hereafter for the National Forest System.

These rules require an integration of planning for national forests and grasslands, including the timber, range, fish and wildlife, water, wilderness, and recreation resources, together with resource protection activities and coordinated with fire management and the use of other resources, such as minerals. By October 1985, plans required by these regulations should be developed for all National Forest System lands.

2. Introduction

The first draft of the proposed rules was published in the August 31, 1978, **Federal Register** (43 FR 39046). The public was invited to comment on the proposed rules through October 30, 1978. However, as a result of numerous requests, the comment period was extended until December 16, 1978. From August 1978 until the present time, the Department has not only received written submissions, the forest Service and Department have maintained an "open door" policy with the public and interest groups to obtain new input and keep the public aware of current events. The Committee of Scientists has continued to conduct public meetings during this time to complete its report to the Secretary and also receive additional input. The Committee's final report was submitted to the Secretary of Agriculture on February 22, 1979 and is printed at the end of these proposed regulations. In addition, two public meetings were held to discuss the August 31, 1978 draft rules. The Department has received letters from members of Congress, Federal and State agencies, representatives of various interests groups, as well as the general public. Individual letters and a Public Comment Analysis are available for review in the office of Land Management Planning, Forest Service, Washington, D.C. and offices of the Regional Forester, located in Albuquerque, New Mexico; Atlanta, Georgia, Denver, Colorado; Juneau, Alaska; Milwaukee, Wisconsin; Missoula, Montana; Ogden, Utah; Portland, Oregon; and San Francisco, California. As a consequence of this public input and related activities, it was decided to revise the draft and resubmit the regulations to the public in draft form accompanied by a draft environmental impact statement (DEIS). The DEIS documents and explains the significant differences between the August 31, 1978 draft and this revised draft, discusses and evaluates other alternatives, and contains a summary analysis of public comments. The DEIS has been published with these proposed regulations and follows the Summary of Public Comment Analysis. Additional copies of the DEIS are available upon request from the office of Land Management Planning, Forest Service, Washington, D.C.

3. Summary of Public Comment Analysis

A total of 737 individual responses were received containing 5,373 individual references to various sections of the proposed rules. Forty-two percent of the 5,373 comments were general in nature; that is, they addressed broad overall issues (relating to, for example, recreation, wildlife, and wilderness) and 58 percent contained specific references.

Approximately 52 percent of the comments were from local organizations and individuals; 44 percent were from national organizations (e.g., Sierra Club, National Forest Products Association), 3 percent from government agencies (Federal, State and local); less than 1 percent of the replies were in other forms, such as petitions.

The greatest interest was expressed in the Resource Management and Guidelines section (219.10), particularly § 219.10(d) Timber Resource, which accounted for 56 percent of all specific comments. The next largest group of comments related to § 219.9 Forest Planning Process, followed § 219.8 Forest Planning Procedures.

The **Federal Register** of August 31, 1978 also contained two alterate versions proposed by environmental and industry groups, specifically § 219.10(d)(2) Timber Producing Lands and 219.10(d)(4) Determination of the Allowable Sale Quantity. Comments on these alternatives were considered in redrafting these sections.

It was evident from the interpretations made by the public that the proposed rules needed clarification. For example, the proposed rules allow for "consideration" of a departure from nondeclining yield; comments received indicated many people felt that departures would be considered "routine." The regulations require that

alternatives (departures) to the base timber harvest schedule be formulated and considered when certain specific conditions exist in the forest unit or local area. All harvest schedules, including proposed departures from the base schedule, must be calculated under the constraint that long-term sustained-yield capacity can be achieved at the end of the planning period.

Outline

The basic outline of the regulations in this draft has been restructured for clarity. Sections have been added in an attempt to improve ease of understanding.

Changes in format are illustrated below:

New Outline	*August 31, 1978 Outline*
219.1 Purpose	219.1 Purpose
219.2 Scope and Applicability	219.2 Scope and Applicability
219.3 Definitions	219.3 Definitions
219.4 Planning Levels	219.4 Planning Levels
219.5 Planning Process	
219.6 Interdisciplinary Approach	219.5 Interdisciplinary Approach
219.7 Public Participation	219.6 Public Participation
219.8 Coordination of Public Planning Efforts	219.7 Coordination of Public Planning Efforts
219.9 Regional Planning Procedure	
219.10 Criteria for Regional Planning Actions	
219.11 Forest Planning Procedure	219.8 Forest Planning Procedure
219.12 Criteria for Forest Planning Actions	219.9 Forest Planning Process
219.13 Management Standards and Guidelines	219.10 Resource Management Standards and Guidelines
219.14 Research	219.11 Research
219.15 Revision of Regulations	
219.16 Transition Period	219.12 Transition Period

Summary Analysis of Public Comments

219.1 Purpose. In response to limited public comments that this section is somewhat unclear and confusing, the set of principles for all levels of planning was expanded to reflect (1) protection and improvement of the quality of all renewable resources, not limited only to soil, air, and water; (2) the inclusion of pest management practices into land and resource management planning; (3) clarification of the purpose of an interdisciplinary approach to planning activities; and (4) the inclusion of the desire to coordinate Forest Service planning efforts with adjacent private landowners.

One of the previous principles, "balanced consideration of all renewable resources and their various uses" was reworded. The statement was criticized because various resource values cannot be adequately measured to permit marginal comparisons.

219.2 Scope and Applicability. It was suggested that regulations and agreements executed pursuant to the legislative acts specifically named in § 219.2, as well as other major legislation and direction, should be added. The comments showed the meaning of this section was not fully understood. The proposed regulations concern planning, and this section addresses the scope of the planning regulations and their applicability to the lands being administered. It recognizes that there are other more specific planning requirements which may apply to certain lands. This section is not meant to identify every statute which may need to be considered and implemented through the planning process. The section has been rewritten to make clear that it relates to planning requirements. It was also suggested that a provision be added that all plans adopted since the passage of the National Forest Management Act (October 1976) would be brought into conformity with the proposed rules. This subject is covered in § 219.16 Transition Period.

219.3 Definitions. Terms such as "economic efficiency," "diversity," "environmental assessment," and "capability" were considered unclear or confusing. Most of the definitions were restated more clearly, and several new terms suggested by the public and the Committee of Scientists were defined: integrated pest management, standards, guidelines, policy, Program, Assessment, real dollar value, multiple use, management direction, management practices, environmental documents, and sustained yield of the several products and services.

The definitions included in the original § 219.10(d) Resource Management Standards and Guidelines for the timber resource were modified and moved to § 219.3 for organizational conformity.

219.4 Planning Levels. Originally § 219.4 attempted to describe the flow of information and management direction among the national, regional and forest levels of planning. Public response indicated that the linkage between the 3–tiered planning process of the Forest Service was unclear and, therefore, weakened accountability. It also appeared to be "top/down planning" without the benefit of forest capability information being available at the national level. This section has been rewritten to clarify the iterative nature of the three levels of planning.

The public is shown how planning criteria govern the planning process and how management standards and guidelines govern management practices, including monitoring practices. Procedural standards are addressed separately in detail in the new § 219.9 Regional Planning Procedure and § 219.11 Forest Planning Procedure. Planning criteria for regional and forest planning in compliance with NEPA are included in § 219.10 and 219.12, respectively. The revised regulations contain an expanded and more detailed role and function of national, regional and forest planning. Management standards and guidelines are detailed in the new § 219.13 Management Standards and Guidelines.

219.5 Interdisciplinary Approach. This section is renumbered § 219.6. Most of the Committee of Scientists proposed language has been adopted in the revised version. The role and responsibilities of the team have been more clearly specified. The revision includes requirements for composition of the team and for qualifications for team members.

The public's request for greater interagency cooperation and coordination is specifically addressed as one of five specific functions to be performed by the interdisciplinary team to achieve integration in planning. This topic is further addressed in § 219.8 Coordination of Public Planning Efforts.

Concern was expressed that the responsible Forest Service official has "too much power over the team." The interdisciplinary team will prepare all land and resource management plans. The regional forester will be responsible for preparation and implementation of the regional plan and approval of forest plans, while the Chief, Forest Service, will have responsibility for approval of regional plans. The forest supervisor will be responsible for preparation and implementation of the forest plan. The forest supervisor will also appoint and supervise the interdisciplinary team, which will develop the forest plan under the NEPA process. After consideration of this concern, the Department has determined that the responsible Forest Service official (regional forester or forest supervisor) is obligated to guide and manage the team which will be composed of various disciplines.

219.6 Public Participation. This section became § 219.7 in the new outline. Comments suggested that this section was not specific enough and, therefore, weakened the public participation process.

In response to the public and the Committee of Scientists' report, the

proposed rules state the intent to public participation, and encourage participation throughout the planning process.

Another topic of concern was how public participation would be evaluated, summarized, and used by the Forest Service. A paragraph was developed specifically stating how public participation input would be analyzed and evaluated (219.7(e)).

Respondents indicated that the amount of time allowed for public response to planning activities was unrealistic. The Department agreed this was a valid concern, and increased the amount of time allowed for written comments on national and regional planning from 60 days to 90 days.

The subject of scheduling public participation activities at specific points in the planning process is addressed in the new § 219.7(b). Section 219.7(c) requires that public participation will begin with publication of a notice in the media. All public participation will be coordinated with the National Environmental Policy Act requirements and its regulations.

The request for greater Federal, State and local agency participation is addressed in specific detail in new § 219.8 Coordination of Public Planning Efforts.

219.7 Coordination of Public Planning Efforts. This section has been renumbered § 219.8, and considerably expanded. Public comments suggested that this section lacked specific guidelines for coordinating public planning efforts, thereby leaving decisions entirely to the discretion of the responsible Forest Service official. An interdisciplinary team will prepare all plans under the direction of a Forest Service official. The proposed rules require that planning be thoroughly coordinated among all levels of government to promote efficient management of the resources from the National Forest System.

The comments indicated that greater attention should be given to coordinating planning efforts with adjacent private landowners. This was considered a valid concern which was not adequately addressed in the August 31, 1978 proposed rules, and the new draft specifically requires this coordination (219.8(b)(1)).

Criteria are specified pertaining to coordination of planning efforts at each level of the Forest Service. An entire new subsection is devoted to better facilitation of State and local government participation through the requested appointment of an official by each Governor to work closely with the Forest Service.

219.8 Forest Planning Procedure. Significant revisions of the second draft are reflected in the new §§ 219.5 Planning Process, § 219.9 Regional Planning Procedure, § 219.10 Criteria for Regional Planning Actions, § 219.11 Forest Planning Procedure, and § 219.12 Criteria for Forest Planning Actions. These revisions attempted to resolve areas of confusion, such as:

1. Specific responsibilities and accountability of Forest Service officials. This subject is now addressed in § 219.5, 219.9, and 219.11.

2. The administrative appeal procedures for regional and forest plans.

These have been changed due to conflicts with amendment and revision provisions of the NFMA, which require that significant changes in plans be made in accordance with the planning process. Under new § 219.7 Public Participation, paragraph (o), the administrative appeal procedure is addressed; i.e., planning decisions pursuant to the NFMA regulations will be excluded from review under 36 CFR 211.19 and any other administrative appeal procedures. The development of land management plan under section 6 of the National Forest Management Act and these regulations is more like a rulemaking process than an adjudicatory process. Anticipated grievances should be addressed during the planning process. A proposed plan could not be significantly changed without complying with planning process requirements, such as public participation; therefore, any decision on appeal would be limited to remanding the plan to the interdisciplinary team for reconsideration. Since there is ample opportunity during plan development for public involvement and coordination, administrative appeals would only prolong the resolution of controversial issues. After final plan approval, a management decision may be appealed on the grounds of nonconformity or because a decision otherwise constitutes an appealable grievance. The Chief's decision regarding the selected harvest schedule under § 219.12(d)(2) may be appealed to the Secretary of Agriculture.

3. Strong public support for availability of copies of plans upon request.

The new draft regulations remain unchanged regarding the various locations where plans must be available. The Federal Government cannot require county courthouses or State offices to maintain copies of the plans, as requested by some respondents and the Committee of Scientists. Copies of environmental impact statements and land and resource management plans will be available upon request.

4. The relationship between national, regional and forest planning.

As previously discussed, a significant revision is reflected in § 219.4 Planning Levels, as well as the development of separate sections on forest and regional planning.

5. Expansion of requirements for documentation of the planning procedures and process followed.

A system must be maintained that records decisions made and actions followed in the development, revision, and amendment of regional and forest plans. The planning process records are detailed in new §§ 219.9 and 219.11.

6. The relationship between scheduling of activities and associated budget levels.

This is addressed in new § 219.5 Planning Process under (j) Plan Implementation, where basic minimum requirements are stated.

7. The revision of a forest plan every 15 years was considered too lenghty.

A revision of the forest plan is mandatory every 10 years, or earlier if significant changes have occurred. The conditions on the land covered by the forest plan must be reviewed every 5 years in conjunction with the Program to determine if management direction, conditions, or public demands have changed significantly.

8. Economic analysis comments.

Economic efficiency was thought by some respondents to be the major criteria for development of a plan. In § 219.1 Purpose, the Department stated its policy for management of National Forest System lands; i.e., they will be managed in a manner sensitive to economic efficiency standards.

The public suggested detailed requirements for determining irretrievable resource commitments, opportunity costs and assessment of benefits and costs.

Additional requirements have been provided under new § 219.5(e), (f), (g), and (h) of the planning process.

9. Formulation of alternatives.

Some respondents suggested the development of a "no-change" rather than "no-action" alternative. This is basically a misunderstanding of terminology. Language in the proposed rules now follow Council on Environmental Quality regulations. Refer to new § 219.5(f) Planning Process.

219.9 Forest Planning Process. The public asked that specific methods and

procedures applied during the planning process be clearly stated.

The planning process is the same for all land and resource management planning and was moved to the new § 219.5. The forest planning process is detailed in new § 219.12 Criteria for Forest Planning Actions. Criteria specific to regional planning was placed in new § 219.19.

The public comments on § 219.9 Forest Planning Process centered particularly on the relationships between national and forest planning process. This particular concern necessitated the developent of § 219.9 and 219.10, which depict the linkage between the national and forest levels; i.e., the regional plan. This linkage and flow of information is also further discussed in § 219.4 Planning Levels. Procedural standards are described for the forest plan in § 219.11 and for the regional plan in § 219.9. Management standards and guidelines are detailed in § 219.13.

219.10 Resource Management Standards and Guidelines. A change in the format of this section has been made and the section renumbered § 219.13 Management Standards and Guidelines. All headings designating functional resources have been deleted to reflect the integrated planning process. Planning criteria previously contained in § 219.10 are contained in § 219.12 Criteria for Forest Planning Actions.

Major resource issues and concerns identified by the public and the Committee of Scientists have been addressed in § 219.12, Criteria for Forest Planning Actions. Standards and guidelines applicable to all resources and management practices are stated in the new § 219.13(b). The Forest Service Manual contains additional standards and guidelines for management of resources and are referenced in the regulations.

The following concerns were addressed in the new § 219.12 and 219.13. Committee of Scentists' recommendations were used in revising these sections. The following describes the Department's rationale for dealing with the identified issues and concerns:

219.10(a) Fish and Wildlife. Material which was addressed in this section has been moved to § 219.12(g).

Species selected as indicators should include invertebrates. If invertebrates were included, the situation would be unmanageable because of the large number of species. Therefore, it was concluded, and agreed to by the Committee of Scientists, that invertebrate life forms should not be included.

Effects of proposed changes in diversity on fish and wildlife should be evaluated. All managment practices must provide for and maintain diversity of plant and animal communities to meet the multiple-use objectives of the planning area. There will be evaluations conducted regarding prior and present conditions. Populaion trends will be monitored. Diversity is covered in new § 219.13(g).

Measures should be prescribed to promote conservation of threatened and endangered species. The forest plan will give direction to prescribe management practices which protect and enhance critical habitat of threatened and endangered species. Refer to § 219.12(g).

219.10(b) Range Resource—Determination of present and potential grazing and range development opportunities. The forest plan will contain an estimate of the capability of the rangelands to produce food and cover for wildlife, as well as estimates of the potential forage for livestock. Data will be collected on rangeland conditions and trends.

Establishment of measures to prevent overgrazing. The forest plan, in accordance with criteria established in the Forest Service Manual, will analyze the capability of the land to produce forage without permanent impairment of rangelands. Grazing management systems will be established through direction in the Manual.

Application of economic analysis to range management. Economic analysis is addressed in § 219.5 for all resources.

219.10(c) Recreation Resource. Planning criteria for recreation are now in the new § 219.12(i).

Public comment indicated this section was conceptually sound, but additional language is needed to ensure implementation. In addition to the goals established in the regional plan and requirements of the Forest Service Manual, implementation is ensured through the direction, in regulations, of specific requirements that must be accomplished to meet the demands for recreation opportunities.

Additional items suggested for inclusion were: Trail development and maintenance, recreaction standards for transportation, guidelines for recreation development, guidelines for recreation development and use to protect resources, coordination with State outdoor recreation plans, wilderness recreation planning, evaluation of econimic and environmental impacts of recreation activities, and the adverse effects or recreation on other management activities with plans for mitigation. These items will be dealt with in the planning process with specific guidelines provided through Forest Service Manual direction. Site-specific development standards will be provided in the forest plan. Project implementation will be within standards set by the forest plan.

Direction should be provided on how recreation data will be used in the planning process. Recreation data will be used to help identify lands suitable for recreation opportunities, assess the need for future recreation facilities, and develop alternatives. Data needs vary according to planning problems. Data will be periodically evaluated for accuracy and reliability.

219.10(d) Timber Resource. This material is now included in §§ 219.12 and 219.13. Due to the large number of comments, the following discussion is presented by subparagraphs.

219 10(d) Definitions. The main concern expressed was that the definitions for timber could not be easily understood. The definitions have been rewritten for clarity and moved to § 219.3 Definitions to achieve continuity.

219.10(d)(2) Timber Producing Lands. The idenitfication of lands not suited for timber production received considerable attention and the comments can be divided into three classes. The August 31 draft was: (1) Too restrictive; (2) adequate because it provides management flexibility; or (3) in need of more explicit standards.

A major area of conflict involved the establishment of specific national biologic standards for classifying lands as suitable for timber production rather than allowing regional establishment of such a standard. Another was the need for an economic analysis to determine suitablility. The proposed rules have been revised to improve clarity and to give direction regarding relative economic sutiablility of lands for timber production. The minimum biological growth standard will be established by the regional plan. The function of this standard is to remove from consideration, and therefore analysis, those lands that are clearly unable to produce timber. This will provide a cost savings in the analysis that follows. Refer to § 219.12(b)(2).

219.10(d)(3) Silvicultural Systems. Comments centered around the need to clarify: (1) The criteria for the selection of the silvicultrual system and cutting method, (2) how criteria are established for the maximum size of forest openings, and (3) requirements for diversity of plant and animal communities.

Information on the selection of silvicultural systems and cutting methods was consolidated and moved

to § 219.13(c) and (d) in order to emphasize that the selection affects all resources, not just timber. These criteria require that all silvicultrual systems and cutting methods be the best suited for the multiple-use objectives of the area, based upon an interdisciplinary evaluation.

The Department has determined that limits on the size of openings will be established through the regional planning and the NEPA process. Criteria are contained in §§ 219.10(d) and 219.12(c); management standards and guidelines are in § 219.13(d).

The background statements and the legislative history indicated that a primary concern was the rate of conversion of hardwoods to conifers. The Proposed standards for diversity and conversion of forest types have been expanded with more emphasis on type conversions. Additional requirements have been specified to ensure coordination with other Federal, State and local agencies. Specific requirements for designation and management of special interest areas and research natural areas have been added in the revised regulations.

219.10(d)(4) Determination of the Allowable Sale Quantity. Departures from the base timber harvest schedule received a great deal of comment. The comments suggested the need to: (1) Define approval authority for departures, (2) provide detailed criteria to ensure that departures are based on truly exceptional circumstances, and (3) question validity of local economic stability as a departure criterion.

With the exception of specifying that the Chief, Forest Service, must approve departures, the revised regulations are similar to the original draft concerning this issue. The Department has determined that consideration of local economic disruptions should be maintained.

219.10(d)(5) Harvest Schedule Selection. There were relatively few comments on this section and revisions reflect suggestions by the Committee of Scientists. The requirements remain essentially unchanged from the original draft and have been incorporated into several sections.

219.10(d)(6) Control Measures and 219.10(d)(7) Monitoring. Many commentors suggested that control measures and monitoring requirements should be integrated in the regulations. This recommendation has been adopted in the revised draft.

The major concern was that specific control measures for timber harvest activities are lacking. Material on control measures has been incorporated into several sections. For controls on timber harvest activities, see § 219.13(i). Additional monitoring and control measures are required to be established in regional and forest planning. See §§ 219.5(k), 219.9(i) and 219.11(i).

219.10(e) Water and Soil Resource. This material is now contained in § 219.12(k). *Include evaluation of effects of changes in sediment output.* All plans must comply with requirements of Federal, State and local governments. Watershed conditions which will affect water pollution will be evaluated. Instream flow requirements are determined by standards in the Forest Service Manual. New § 219.13(e) states that "Special attention shall be given to land and vegetation along both sides of all perennial streams, lakes, and other bodies of water. No management practices will be permitted which seriously and adversely affect water conditions or fish habitat."

Consideration of increasing water yield through manipulation of vegetative cover. Any management practice that involves manipulation of vegetative cover must assure conservation of soil and water resources. Watershed conditions that influence water yield also must be evaluated.

Identification of impacts of impoundments upon fish, wildlife, and water resources. The regulations specifically state that impacts of impoundment must be identified. Guidelines for identification are contained in the Forest Service Manual.

Clarify direction for floodplains and wetlands protection. The regulations specifically state measures, in accordance with applicable Executive Orders, that will be adopted with respect to the restoration and preservation of floodplain values and protection of wetlands.

Forest Service should meet minimum water quality standards and follow a policy of improvement of water quality. All management practices will conserve water resources and meet requirements of other legislation with respect to water quality standards. Instructions will be contained in technical Forest Service Handbooks.

219.10(f) Wilderness Resource. This material is now contained in §§ 219.12(e) and 219.12(f).

Modified management on lands adjacent to wilderness. The effects of management of lands adjacent to wilderness will be evaluated using criteria developed by the interdisciplinary team.

Evaluation of plant diversity and rare and endangered species. When an area is considered for potential wilderness, the effects of long-term changes in plant (and animal) species will be considered.

The interdisciplinary team should propose eligible lands for wilderness use, based on current resource analysis. Lands suited for wilderness will be considered as a normal part of the planning process by the interdisciplinary team. The forest supervisor has authority to recommend an area for wilderness consideration in the forest plan. (The Congress has approval authority for wilderness designation pusuant to the National Wilderness Preservation Act.)

All areas should be considered for wilderness designation in the "first generation" of forest plans. The Department has determined that areas identified for uses other than wilderness during RARE II need not be re-evaluated for wilderness until the first revision of the forest plan. This is addressed in detail in § 219.12(e).

Section 219.10(f)(2), which deals with revision of forest plans, is unclear and confusing in the following area: "How do contiguous lands become available for uses other than wilderness?" All lands are evaluated for multiple use during the planning process. An area contiguous to existing wilderness will be evaluated for its wilderness potential through the process, and can become available for uses other than wilderness.

Section 219.10(f)(3) is in conflict with 219.10(f)(1) and could be legally challenged. These sections were not in conflict and have been clarified in the revised regulations.

It is inappropriate to focus only on limiting visitor use in wilderness management. Direction for limiting visitor use is provided in the forest plan, in accordance with periodic estimates of the maximum levels of use that will not impair the wilderness values. Additional management direction, such as dispersal of use by trail location management, will be addressed in the forest plan.

Consideration of non-renewable resources is lacking. A new subsection on minerals has been added to the forest plan criteria under § 219.12(j).

219.11 Research. This material is now contained in § 219.16. *Establishment of Research Natural Areas through the planning process.* A new subsection is devoted to this subject (219.12(m)) in response to public request and the Committee of Scientists' recommendation.

Emphasize cooperative research efforts with other public and private research activities. Research needs will be identified during the monitoring and evaluation described in § 219.5 Planning

Process, and continually reviewed. These needs are addressed in the formulation of overall programs, and include private lands as well as public lands.

Basic research should be mandated by proposed rules rather than the planning process. The rules are process oriented to identify research needs. Basic research is an integral part of the research program and will continue.

219.12 Transition Period. This material is now contained in § 219.17.

Will proposed regulations be applicable to existing management practices? Until development of a forest plan under the promulgated NFMA regulations, land may be managed under existing plans.

Will plans developed between the passage of NFMA and final regulations have priority for being brought into conformity with NFMA? These plans have attempted to incorporate as much of the provisions of NFMA as possible.

4. Record of Decision

The Draft Environmental Impact Statement (DEIS) analyzes alternative regulations for National Forest System resource planning. Based on the analysis, I have decided to propose that Alternative No. 6 be considered as the preferred Alternative. The proposed regulations are printed in this issue of the **Federal Register** and follow this DEIS. The public review and comment period expires 60 days following the date of this Record of Decision, or the date of publication in the **Federal Register** whichever is later.

The National Forest Management Act has directed the development of the proposed regulations by identifying standards and guidelines to be addressed and by establishing a Committee of Scientists to review and advise on this effort. The Act reduced the range of alternatives available for development of the regulations. Nevertheless, alternatives of terminology, planning processes, regulation language, etc., have been developed through extensive public involvement, by the Committee of Scientists, and evaluated during this process, including preparation of this DEIS.

Implementation of the proposed regulations may take place after publication of a Final Environmental Statement, and final printing of the regulations in the **Federal Register** following initial public review and comment. Questions regarding this Draft Environmental Statement should be sent to the USDA Forest Service, Land Management Planning, P.O. Box 2417, Washington, D.C. 20013.

This Draft Environmental Statement was filed with the Environmental Protection Agency.

Dated: April 16, 1979.

Bob Bergland,

Secretary.

5. Draft Environmental Impact Statement

Proposed Regulations for National Forest System Planning

1920 Land Management Planning

Forest Service, USDA

Lead Agency: United States Department of Agriculture, Washington, D.C. 20013.

Responsible Official: Bob Bergland, Secretary of Agriculture, Washington, D.C. 20013.

For Further Information Contact: Charles R. Hartgraves, Director, Land Management Planning, P.O. Box 2417, Washington, D.C. 20013. (202–447–6697).

Absract:

This Draft Environmental Impact Statement (DEIS) analyzes and evaluates alternative sets of proposed regulations developed in response to Section 6 of the National Forest Management Act. The regulations prescribe the process for preparation of all land and resource management plans developed hereafter for each administrative unit of the National Forest System. Also prescribed, and integrated into the planning process, are a number of technical standards which govern the conduct of management practices. The DEIS describes the conceptual basis for the planning process described in the proposed regulations, and the issues central to their need.

The alternative regulations are procedural. Though their promulgation has only indirect effects on the quality of the human environment, there are important policy matters to consider in the use and application of a given alternative. This is especially true in the application of technical standards (specified management standards and guidelines) whose impacts are variable depending upon where they are applied. The qualitative nature of effects is addressed in this Draft Environmental Impact Statement. Specific impacts will be discussed in detail and in quantitative terms in regional and forest level plans prepared under these proposed regulations. An environmental impact statement will be prepared for such plans pursuant to Council on Environmental Quality and Forest Service National Environmental Policy Act regulations.

Summary

Draft Environmental Impact Statement

Proposed Regulations for National Forest

System Resource Planning

1920 Land Management Planning

Forest Service, USDA

Responsible Federal Agency: United States Department of Agriculture, Washington, D.C. 20013.

Responsible Official: Bob Bergland, Secretary of Agriculture, Washington, D.C.

For Information Contact: Charles R. Hartgraves, Director, Land Management Planning, USDA Forest Service, P.O. Box 2417, Washington, D.C. 20013. (202–447–6697).

Date of Transmission to EPA and to the public: Draft: May 4, 1979.

Summary

I. The Department of Agriculture proposes to issue regulations to guide land and resource management planning for the National Forest System. This Draft Environmental Impact Statement analyzes and evaluates alternative sets of proposed regulations developed in response to the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA), as amended by the National Forest Management Act of 1976 (NFMA). The latter statute requires that regulations be issued which describe the process for developing and revising land management plans for administrative units of the 187 million-acre National Forest System. The regulations explain the process and contain management guidelines and standards which relate to the national, regional, and local resource goals established by the Forest Service Renewable Resources (RPA) Program. This insures that economic, environmental, and ecological aspects are consistent with the RPA, Multiple Use-Sustained Yield Act, and other statutes which affect Forest Service activities. The regulations require integrated planning throughout the NFS for the management, protection, and use of timber, range, fish and wildlife, water, recreation, and wilderness resources. The required integration is accomplished with the aid of interdisciplinary teams, public participation, and is coordinated with the land management planning processes of States and local government's and other Federal agencies.

The NFMA was enacted to resolve long-standing issues about managing National Forest resources. The central or primary issues and concerns which are discussed in this DEIS and which the proposed regulations address are:

—The conceptual framework for the integrated planning process

—The interdisciplinary approach to planning

—Diversity of tree species and plant and animal communities

—The role of economic analysis

—The determination of lands not suited for timber production

—Departures (limitations on timber removal)

—Size of openings created by harvest cutting

—Public participation

—Management of wilderness areas, and disposition of roadless areas.

—Coordination in planning between Federal, State, and local governments

—Buffer strips in riparian zones.

II. Alternatives Considered In This Draft Environmental Impact Statement.

An infinite variety exists of ways for language to capture the intent of NFMA in process, management standards, and guidelines. Alternatives presented in this DEIS cover language to address the central issues and concerns mentioned above. Since NFMA mandates development of regulations, a "no change" alternative was not created for presentation, discussion, and evaluation in the DEIS.

The seven alternatives are:

1. Forest Service Draft Regulations as published in the **Federal Register,** Vol. 43, No. 170, august 31, 1978, as further explained and evaluated in a published Environmental Assessment Report, and Supplement, dated August 24, and September 12, 1978, respectively.

2. Environmental Group's proposals for § 219.10(d), as published in the **Federal Register,** August 31, 1978.

3. Timber Group's proposals for § 219.10(d), as published in the **Federal Register,** August 31, 1978.

4. Committee of Scientists Final Report to the Secretary of Agriculture (2–22–79), and recommended regulations attached thereto.

5. Public comment; the summary or consensus view for several of the issues which represents the wishes or suggestions of the "Public at large".

6. The Preferred Alternative: Revised draft regulations, with provisions for nationally established standards for buffer strips and harvest cut openings.

7. Revised draft regulations identical in all respects to Alternative No. 6 EXCEPT that standards for riparian buffer zones and harvest cut opening sizes will be established through the regional planning process.

III. NFMA requires an integrated plan for each administrative unit of the NFS. The planning process prescribed establishes an interdependency of land management and resource planning.

It is virtually impossible to quantify the specific effects of implementing any of the alternative regulation proposals. The regulations direct the process of preparing and revising plans, and have no direct effect on the human environment, nor do they commit land or resources. The regulations only establish procedures for planning future commitments.

Effects on the production of goods and services are conjectural and cannot be verified until the planning is completed. Anticipated impacts will be identified in plans prepared pursuant to the regulations and to the NEPA process.

Some general qualified effects or impacts of the alternatives are presented in table form by issues. Foe example, each alternative enhances plant and animal diversity, protects soil and water values and the visual resource, and ensures long term productivity. The relative contribution toward enhancement of each alternative is illustrated in the appropriate tables. The actual results, quantitatively, will not be known until individual plans are completed.

IV. Consultation with others, including the public, was extensive and was a major factor in developing the proposed action discussed in this DEIS. The public was invited to comment on the first draft of the regulations which appeared in the **Federal Register** August 31, 1978. Two public hearings were also conducted specifically to obtain views. From the initial inception of work to develop the regulations through to the present time, the Forest Service and the Department have maintained an open door policy with the public and interest groups to obtain information as well as to explain work and progress. Seventeen Committee of Scientists meetings were opened to the public, and a total of 737 individual responses containing 5,373 distinct references to various parts of the draft regulations were received, a substantial number of which were elaborate, detailed, and explicit. Included were letters from memers of Congress, Federal and State Agencies, representatives of various interest groups, as well as the general public. As a consequence it was decided to revise the draft regulations and to republish them accompanied by an environmental impact statement.

Following is a list of Federal agencies, State governments, national organizations from which written comments were received following publication of the draft regulations on August 31, 1978. Comments from individuals were too numerous to list here, but these names will be published in the Final Environmental Statement. All respondents (737) will be sent a copy of the DEIS as published in this issue of the **Federal Register.**

Federal Agencies

Library of Congress, Environment and Natural Resources, Congressional Research Service, Washington, D.C. 20540.
U.S. Environmental Protection Agency, Office of Federal Activities, Washington, D.C.
U.S. Department of Interior, Bureau of Reclamation.
U.S. Department of Interior, Heritage Conservation and Recreation Service.
Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.
Department of Transportation, Federal Highway Administration, Highway Planning Office.
U.S. Department of Interior, Bureau of Land Management, Washington, D.C. 20240.
Executive Office of the President, Council on Environmental Quality, Washington, D.C.

State and Local Government

(Senator) Ivan M. Mathison, Utah State Senate, Salt Lake City, Utah.
State Planning Coordinator's Office, State of Utah, Salt Lake City, Utah.
Colorado Division of Wildlife, Department of Natural Resources, Denver, Colorado.
Denver Water Department, Denver, Colorado.
Conservation Division, Arizona State Land Department, Phoenix, Arizona.
State of Alaska, Office of the Governor, Director of Policy, Development, and Planning, Juneau, Alaska.
Montana Department of Fish and Game, Wildlife Division, Helena, Montana.
Placer County, Conservation Task Force, Aubum, California.
Council of State Governments, Lexington, Kentucky.
Western States Legislative Forestry Task Force, Sacramento, California.
Commissioner of Public Lands, State of Washington, Department of Natural Resources, Olympia, Washington.
Office of State Forester, Forestry Department, Salem, Oregon.
Department of Natural Resources, Atlanta, Georgia.
Department of Natural Resources, Denver, Colorado.
State of Washington, Department of Game, Olympia, Washington.
Council of State Planning Agencies, National Governor's Association, Washington, D.C.
Wildlife and Fisheries Commission, State of Louisiana, New Orleans, LA.
Idaho Department of Fish and Game, Boise, Idaho.
Dixie Lee Ray, Governor, Office of the Governor, Olympia, Washington.

Nevada Department of Fish and Game, Reno, Nevada.
Minnesota State Legislature (Senator Bob Lessard), St. Paul, Minnesota.
Elko County, Elko, Nevada.
East Central Planning and Development Region, Comprehensive Studies Division, Saginaw, Michigan.
Placer County, Conservation Task Force, Auburn, California.
Buncombe City Soil and Water Conservation District, Asheville, North Carolina.
East Central Idaho, Planning and Development Association, Rexburg, Idaho.
State Planning Coordinator, Governor's Office, Carson City, Nevada.
State Conservationist, Idaho, U.S. Department of Agriculture, Boise, Idaho.

Organizations

Tennessee Citizens for Wilderness, League of Women Voters, Simpson Timber Company, Sierra Club (including many local Chapters), Texas Committee on Natural Resources, Ozark—Mahoning Company, Citizens Committee to Save our Public Lands, Ohode, Defenders of Wildlife.
Animal Protection Institute of America, Kern Plateau Association, Group Against Smog and Pollution, Cascade Holistic Economic Consultants, The Wilderness Society, Northwest Pine Association, Atlantic Richfield Company, Appalachian Mountain Club, National Catholic Rural Life Conference, Hammermill Paper Company, Idaho Mining Association, Idaho Environmental Council, MECCA.
Friday Harbor Laboratories, Edward Hines Lumber Company, MAPC, East Central Idaho Planning and Development Association.
Audubon Society (including State Chapters), The Headwaters Association, The Conservation Foundation, Western Forestry and Conservation Association, Western Timber Association.
Paul Bunyan Lumber Company, The Bunker Hill Company, Arcata Redwood, American Forestry Association, The Dawes Arboretum, Boise Cascade Corporation, Timber Products Company.
Colorado Mining Association, M. L. King Co., The Mountaineers, Alaska Lumber and Pulp Co., Inc., Isaak Walton League (including local Chapters), Wyoming Sawmills, Inc., True Oil Co.
Southern Idaho Forestry Association, Fourply, Inc., Helena Environmental Information Center, Environmental Action of Michigan, Inc., Idaho Conservation League, Brookings Plywood Corp., Idaho Pole Co., International Ecology Society, Hitchcock and Pinkstaff.
Cheveron U.S.A., Inc., Aspen Wilderness Workshop, Inc., New England Trail Rider Association, The Annaconda Co., Texaco, Inc., Friends of the Earth, Far West Ski Association, St. Regis Lumber Co.
California Association of 4-Wheel Drive Clubs, Inc., Wildlife Management Institute, Sun Studs, Inc., Boatman Industry Association, Day Mines, Inc., Wyoming Mineral Corp.
Louisiana-Pacific Corp., Evansville Veneer and Lumber Co., Industrial Forestry Association, Owens-Illinois, Inc., Headwaters, The Ptarmigans, Michigan United Conservation Clubs, Resources for the Future.

Hampton Tree Farms, Inc., SWF Plywood Co., American Hardwood Industries, Inc., International Paper Co., The Robert Dollar Co., Potlalch Corp.
The Northcoast Environmental Center, Greater Snake River Land Use Congress, Forest Land Services, Inc., National Forest Product's Association, National Wildlife Federation, Sierra Club Legal Defense Fund, Inc.
Lake Pleasant Forest Products Corp., Ellinson Lumber Co., American Plywood Association, Federation of Western Outdoor Clubs, Alaska Loggers Association, Outdoors Unlimited, Inc., Wausau Papers, The Gila Wilderness Committee, John Muir Institute.
South Carolina Enviromental Coalition, The Nature Conservancy, Federal Timber Purchasers Association, Minnesota Forest Industries, Tennessee Forestry Association, OSPRIG.
Oregon Wilderness Coalition, L. D. McFarland Co., Weyerhauser Co., American Petroleum Institute, Gulf Lumber Co. Inc., SE Lumber Manufactures Association, Appalachian Hardwood Manufacturers, Inc.
Rocky Mountain Oil and Gas Association, SE Alaska Conservation Council, Inc., Herbert Lumber Co., Independent Petroleum Association, Allied Timber Co., Mauk Forest Products, Inc., Arroyo Grande Resource Conservation District, Alpine Lakes Protection Society, Seaboard Lumber Co., Scott Paper Co.
Burrill Lumber Co., Westvaco, Rocky Mountain Energy Co., Champion Timberlands, Endangered Species Committee of California, Elsa Wild Animal Appeal, Forest Engineers, Inc.
Packaging Corporation of America, A.C. Dutton Lumber Co., Protection of New Hampshire Forests, Citizens for Northern Idaho Wilderness, Diamond International Corp.
Umpqua Wilderness Defenders, Champion International Corp., The Anschutz Corp., Alaska Women for Timber, Freinds of Wildlife, Bohemia, Inc., Puget Sound Plywood, Inc., Society of American Foresters, Western Wood Products Association.
Brady, Blackwell Associates, P.C., New Mexico Wilderness Study Committee, M.A. Rigoni, Inc., Tennessee River Pulp and Paper Co., Bell-Gates Lumber Corp., Central Cascades Conservation Council, Burlington Northern, Buse Timber and Sales, Inc.
Boyd Lumber Co., Brunswick Pulp Land Co., Kogap Lumber Industries, Mead-World, Tenneco Inc., Canal Wood Corp., National Resources Defense Council, Shell Oil Co.
Clearwater Forest Industries, Montana Pole and Treating Plant, Schnabel Lumber Co., Consolidated Papers, Inc., Idaho Stud Mill.
Motocycle Industry Council, Inc., Finch, Pruyn and Co., Inc., NLBMBA, Kinzia Corp., U.S. Ski Association, Brown-Bledsoe Lumber Co., J. Gibson McIlvain Co., The Brazier Co., Williamette Industries, Inc., Merrill and Ring, Inc., The McGinnis Lumber Co., Inc., Hoking Valley Rock Shop, Bowater.

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I. Introduction

Development Background

The Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA), as amended by the National Forest Management Act of 1976 (NFMA), is a comprehensive framework and primary source of direction to the Forest Service to fulfill its mandate to manage the National Forest System (NFS). The central element of the Act is the institution of land and resource management planning as a basic means to achieve effective use and protection of renewable resources and a proper balance of the use of NFS lands.

The Act sets forth under Section 6 that the Secretary of Agriculture must prescribe NFS land and resource management planning regulations. The standards and guidelines in these new regulations must be incorporated into NFS land and resource management plans and every effort is to be made to complete such plans by September 30, 1985.

A draft of the proposed regulations was published in the **Federal Register**, Vol. 43, No. 170, August 31, 1978 (pp. 39046–39059) for public review and comment. An Environmental Assessment Report and Supplement were also prepared dated August 24, and September 13, 1978, respectively. These draft regulations had been under preparation since the spring of 1977, when the Secretary of Agriculture appointed a Committee of Scientists to provide advice and counsel on the development of the regulations required by Section 6 of NFMA. Publication of the draft regulations prompted

substantial comments, suggestions, and recommendations from the general public, and various resource and environmental groups. It was, therefore, decided to revise the August 31, 1978 draft regulations and to resubmit regulations to the public in draft form to be accompanied by a draft environmental impact statement (DEIS). These revised draft regulations and alternatives thereto are presented in this draft environmental impact statement for public review and comment.

Management of the National Forest System (NFS)

The Forest Service administers 187 million acres of Federal land located in 44 States, Puerto Rico, and the Virgin Islands. Except where special, restricted uses are prescribed by law, this land is managed under the concept of multiple use (as defined by the Multiple Use-Sustained Yield Act of 1960) for a variety of products and services including wood, water, wildlife and fish, forage, wilderness, and outdoor recreation. The enduring resource of the National Forest System is its capability to meet a wide variety of public needs. Multiple-use management provides the architecture for harmoniously nurturing the balance between productive ecosystem longevity and societal desires. Careful analysis of use relationships and available opportunities within a context of equitable distribution and just compensation are required to meet the goals embodied in the Multiple Use Sustained Yield Act of 1960. So that the various uses are harmonized to minimize conflicts and adverse impacts on the land, the relative values of the different resources are considered in determining forest and rangeland resource use patterns that will meet the needs of the American people.

Evolution of National Forest System Planning

During the early 1900's, most National Forest System lands were inaccessible, public demands for goods and services were low, and conflicts among resource uses were minor. Priority was given to protecting these pubic lands from fires, damaging insects and diseases, and unauthorized use. Resource production and use served local rather than regional or national needs. Most Forest Service planning in that era centered on specific work plans for forest land rehabilitation, protection and reforestation.

By the late 1930's, however, there existed a general public awareness that more intensive management of the National Forests—and the utilization of their various renewable resources on a sustained-yield basis—should also serve the national interest. This prevalent philosophy, coupled with a need for vital timber during World War II, spawned a dramatic expansion of National Forest resource management and utilization in the 1940's and 1950's.

Although early laws governing the establishment and administration of the National Forests referred only to timber and water resources, the other resources—wildlife, forage, and outdoor recreation—have always been protected and managed. By 1939, the Forest Service had made clear its policy to administer the National Forests on multiple-use principles.

Following World War II, the agency completed an appraisal of the Nation's forest situation and developed the concept of composite resource planning. The various resources were inventoried, and a composite plan prepared that described types of vegetation, location of streams and other bodies of water, areas requiring special management, planned recreation areas, primary transportation routes, and other pertinent factors.

Recognizing the lack of specific statutory direction to manage all the resources of the National Forests under multiple-use principles, the Forest Service proposed a multiple-use act in the late 1950's. Passage of the Multiple Use-Sustained Yield Act of 1960 provided congressional endorsement of the Forest Service policy and practice of equal consideration of all National Forest renewable resources.

Land management planning was formalized into a distinct process upon passage of the Multiple-Use Sustained-Yield Act. Until shortly after passage of the National Environmental Policy Act of 1969, this process was commonly referred to as "multiple-use planning," and the basic documents that described how the various resource uses would be coordinated were called "multiple-use plans." Separate plans were made for each National Forest Ranger District.

These multiple-use plans usually zoned National Forest System land and included specific coordinating requirements to ensure compatability of resource uses. They did not set resource development goals. Such goals were established by separate resource development plans prepared for each National Forest. The Ranger District multiple-use plans were used to coordinate the actions taken to achieve the objectives of the National Forest System resource development plans.

District Rangers were also required to prepare a special impact analysis before undertaking any significant resource development project. The analysis contained a statement on the nature and scope of the project, the expected impact the project would have on each resource, and how the project would be carried out to conform to the multiple-use plan requirements. The format of these reports was similar to that of present-day environmental impact statements.

In the early 1960's, another factor had also entered the resource picture—intensified public concern for environmental policy. Suddenly, it seemed, the Nation realized that clean air, clean water, and natural beauty were just as important to its standard of living as industrial products. Increased concern for the Nation's forest lands was part of this awakening environmental consciousness. Many Americans became aware of the National Forest System and realized that although these public lands contained most of the Nation's remaining natural resources, there were limits to their uses.

The desire for a quality environment, however, did not lessen the need for forest products and services from the National Forests. On the contrary, while concern for the environment reached new heights, so did the demand for products and services. One result of this was the passage of the 1964 Wilderness Act. Since the 1920's, the Forest Service has identified and designated areas of high wilderness value on the National Forests. Development of these areas was precluded under direction by the Secretary of Agriculture or the Chief, Forest Service. The Wilderness Act created the National Wilderness Preservation System and provided for the designation of Federal land to be preserved in their natural state.

By the mid-1960's, the Forest Service was caught in a dilemma. On one hand, conficting demands for forestry resources were increasing rapidly; on the other hand, the renewable resource base was perceived as shrinking with the implementation of the Wilderness Act. Some critics claimed that management of the National Forest System was out of balance, that some uses were being increased at the expense of others, and that the Forest Service was ignoring its mandate to manage the National Forest System for multiple uses. And, seemingly, the public wasn't being given a chance to formally influence the Forest Service decisionmaking process. The Forest Service land management planning

process changed in three major aspects in response to these public concerns and to the National Environmental Policy Act (NEPA) of 1969.

The first change converted Ranger District multiple-use plans to land management unit plans. (Unit plans are considerably more detailed. They apply to geographic areas containing similar social and physical resources and land characteristics rather than to Ranger Districts, and they are accompanied by environmental impact statements.)

The second change incorporated more strict interdisciplinary analyses into the planning process. (Before NEPA, multiple-use plans received multidisciplinary review. After NEPA review was accomplished through interdisciplinary interaction.)

The third change formally involved the public in forming and reviewing unit plans.

In August 1974, Congress enacted the Forest and Rangeland Renewable Resources Planning Act (RPA). Although it did not significantly change existing Forest Service land managment planning procedures, it made the development and maintenance of National Forest System land and resource management unit plans statutory requirements. It re-emphasized that an interdisciplinary approach be used in the development and maintenance of land management plans. It required that periodic comprehensive programs be developed that would integrate all Forest Service activities. And it more directly involved Congress in evaluating Forest Service programs and in assigning priorities. The RPA also provided for an assessment of the Nation's renewable resources, including those of the National Forest System. This Assessment provides the basic information for planning.

The National Forest Management Act of 1976 amended RPA to provide additional statutory direction on the preparation and revision of National Forest System land and resource management plans.

Major highlights of NFMA are land management planning, timber management actions, and public participation in Forest Service decisionmaking. Also featured are requirements for coordination with planning processes of State and local governments and other Federal agencies, and an interdisciplinary approach to plan developent and maintenance. It reaches beyond the 187 million acres of the National Forest System to recognize the importance of scientific research and cooperation with State and local governments and private landowners. So, in effect, it addresses all three major areas of Forest Service operations in carrying out its national forestry leadership role—management of the National Forest System, natural resources research, and cooperative forestry assistance to State and private landowners.

A major part of the NFMA is devoted to strengthening the Forest and Rangeland Renewable Resources Planning Act (RPA). All but one of the first 12 sections are amendments to it, nearly tripling the length of the Resources Planning Act. Some of these amendments include requirements for recommendations in the RPA Program which evaluate major Forest Service program objectives; explain opportunities for all forest and rangeland owners to improve their lands; recognize the need to improve and protect soil, water and air; and state national goals relating to all renewable resources.

Land management planning direction is the core of the Act. Regulations will be issued describing the process for development and revision of land management plans. Management guidelines will deal with overall NFS land management and require that lands be identified according to their suitability for resource management.

These guidelines will relate to the RPA Program goals to ensure that economic, environental, and ecological aspects are consistent with the Multiple-Use Sustained-Yield Act and RPA.

They will provide for the diversity of tree species and plant and animal communities, with research and management evaluation to prevent impairment of the land's productivity.

Each National Forest System unit will prepare, through an interdisciplinary team approach and with the aid of public participation, an integrated, comprehensive land management plan to be revised at least every 15 years. The land management plan and supporting functional plans must be integrated.

NFMA Act contains direction on harvest scheduling practices followed by the Forest Service. The annual allowable harvest sale quantity from each National Forest will generally be limited to a quantity equal to or less than a quantity which can be removed annually on a sustained-yield basis. The Act gives the flexibility to depart from this policy through land managment planning, including public participation. Departures from the standard policy must be in harmony with multiple-use objectives of the land management plan.

Land areas not suitable for timber production will be identified in land management plans considering physical, economic and other factors. They are not to be harvested for 10 years except for salvage sales or sales to protect other multiple-use values. Such lands will be reviewed every 10 years thereafter and may be returned to production if appropriate.

Silvicultural standards will insure that, generally, stands of trees shall be harvested when mature (culmination of mean annual increment of growth). However, timber stand improvement measures, salvage operations and removal of trees for multiple-use purposes are not precluded. This means that stands of trees within the National Forests in general shall be sawtimber rather than pulpwood size before harvesting. The Act also directs that diversity of plant and animal species should be provided for and appropriate tree species diversity maintained. In brief, there should be no large-scale conversions of National Forest lands to a single-tree species.

The Act incorporates into law the substance of the so-called "Church Guidelines." These guidelines include the caution that clearcutting should only be used where it is the optimum method.

Public participation in development and revision of land and resource management planning was a prime priority in congressional thinking. The phrases "public participation" or "public involvement" are used 11 times in the Act and are clearly indicated in other sections.

A Committee of Scientists—composed of non-Forest Service personnel—was established to help develop regulations for all land management planning, including timber and other resource plans, by providing scientific advice and counsel, and to insure that the planning process is interdisciplinary.

Regulations must be written to carry out the public participation aspects of the law. Not only has Congress ordered fuller public participation in the decisionmaking process, but it also made rules so the public can participate with relative ease.

Direction for Planning and Management

Planning for resource allocation and the conduct of subsequent management activities require (1) the best available resource data and information, including the views of citizens and special interest groups, other Federal, State and local agencies, and (2) the synthesis and evaluation of such data and information utilizing professional and administrative judgments as to how best to meet statutory goals and objectives and achieve the interests and expectations

of the public. To accomodate these requirements, all Forest Service activities are grouped into 12 program elements comprised of eight resource elements (recreation, wilderness, wildlife and fish, range, timber, water, minerals, and human and community development) and four support elements (protection, lands, soils, and facilities).

Resource program elements are defined as major Forest Service mission-oriented endeavors that fulfill statutory or executive requirements and indicate a collection of activities from the various operating programs required to accomplish the agency mission.

Support program elements are activities and costs that do not primarily benefit a single resource element. However, these elements encompass the activities that are necessary to maintain and facilitate outputs of several or all resource elements.

The mission elements that follow for each program element provide overall national direction for the activities within that element. Land managment planning is the prinicpal device for conveying management direction to an from the national level to National Forest planning areas.

Resource Program Elements—1. *Recreation.* The primary mission of this element is to provide outdoor recreation opportunities for the Nation. This includes all activities necessary to protect, administer, and develop outdoor recreational opportunities within the National Forest System so that they meet their appropriate share of the Nation's existing and anticipated demand compatible with other resource values; protect, manage, and provide trails and other access to the scenic and cultural resources within the National Forest System; conduct research to improve the effectiveness of providing and managing outdoor recreational opportunities; and provide technical assistance and advice to non-Federal landowners for dispersed recreation.

2. *Wilderness.* The primary mission of this element is to secure the benefits of an enduring resource of wilderness by assuring that suitable, needed, and available National Forest System lands will be designated for preservation and protection in their natural condition. National Forest System wildernesses are administered for the use and enjoyment of the American people so as to leave the resource unimpaired for future use and enjoyment, to preserve their wilderness character, and to provide for the gathering and disseminating of information regarding their use.

The classification and study of National Forest System areas for possible wilderness designation are included in the Lands support element, while the management of such areas is included in the Recreation resource element. Wilderness research is related to recreation research to provide knowledge to manage and protect wildernesses and unique ecological features.

3. *Wildlife and Fish.* The primary mission of this element is to provide productive wildlife and fish habitats, with special emphasis on threatened and endangered species. Management of wildlife and fish habitats is closely coordinated with the States, because States have prime responsibility for management of wildlife and fish populations. This coordination includes maintaining close working relations among National Forest System units and other Federal, State, and private land managers. The element includes activities necessary to protect, administer and develop National Forest System wildlife and fish habitats; assist non-Federal land managers through coopertive forestry programs; and develop new knowledge through research on the environmental requirements of wildlife and fish and attainable management alternatives under these requirements.

4. *Range.* The primary mission of this element is to provide for efficient ways of livestock grazing on forest and rangelands commensurate with other commodity, environmental, social, and aesthetic needs. Ecological and management information about range ecosystems is provided for non-livestock purposes, such as endangered plants and wild free-roaming horses and burros. This element includes all those activities that bear directly upon management, use, and protection of National Forest System range resources; cooperative activities for the use and improvement of non-Federal forested ranges; and research to provide a sound technical and ecological base for range management, use and protection.

5. *Timber.* The primary mission of this element is to enhance the growth, utilization, and utility of wood and wood products to help meet the Nation's short- and long-term needs. It includes management activities in the National Forest System and on non-Federal lands, as well as research activities that contribute to the improvement, growth, and timely and efficient harvests of timber from forest land, consistent with other resource values; the efficient processing and utilization of wood and wood-related products; and the development of better management methods.

6. *Water.* The primary mission of this element is to protect, conserve, and enhance water resources within the National Forest System consistent with other resource values. This element also includes watershed and river basin planning and development, in cooperation with States and other agencies, designed to increase knowledge about the water resource. Included are research and cooperative activities to meet water quality and quantity standards onsite and offsite to reduce pollution and to improve water resource features.

7. *Minerals.* The primary mission of this element is to integrate the exploration and development of mineral resources within the National Forest System, with the use and protection other of resource values. Research and cooperative activities related to the reclamation of mined lands are also included.

8. *Human and Community Development.* The primary mission of this element is to help people and communities to help themselves. The element includes activities that provide: Youth development through resource conservation work and learning experiences; adult employment and training opportunities through various Federal human resource programs; rural community planning development information and services; and technical forestry assistance and research for urban areas in the establishment, management, and protection of open space and the use of trees and woody shrubs.

Support Program Elements—1. *Protection.* The primary mission of this element is to protect and maintain forest and rangelands. It includes insect and disease control, fire protection, law enforcement, development of knowledge through research, and the technical assistance needed for National Forest System and other public and private forest and rangelands.

2. *Lands.* The primary mission of this element is to assist in land management planning and provide special land-use administration, landownership adjustment, multiresource studies, and new knowledge through research which primarily benefits multiple resource element outputs. These activities cover technical assistance and cooperation on non-Federal lands as well as within the National Forest System.

3. *Soils.* The primary mission of this element is to protect, conserve, and enhance the soil productivity of forest and rangelands. It includes the

development of new knowledge through research, surveys, protection, rehabilitation, and improvement activities directed toward non-Federal lands as well as within the National Forest System.

4. *Facilities.* The primary mission of this element is to provide and maintain capital improvements such as buildings, roads, fences, bridges, dams, and airfields.

Central Issues and Concerns Addressed by Alternative Regulations

The NFMA was enacted to resolve long-standing issues concerning the management of National Forest resources. It clarified rules about the use of silvicultural practices and required that certain land and resource management planning practices be developed and used. The proposed regulations respond to the NFMA by prescribing a planning process and technical standards and guidelines to govern planning and management activities. The central or primary issues and concerns which the proposed regulations attempt to address are described as follows:

1. *The Conceptual Framework for The Integrated Planning Process.* There are many major proven conceptual models for planning-decisionmaking policy formulation. Which model or combination is best suited to congressional direction that the Forest Service define a unified planning process with supporting guidelines and standards to implement on each administrative unit of the National Forest System? Should emphasis be on process or on prescription? To what extent and detail should the relationships among and between planning levels and resource management functions be defined?

2. *The Interdisciplinary Approach to Planning.* The primary concerns are the purpose of the interdisciplinary team, who and what disciplines should be represented on the terms, what should be the professional and technical qualifications of team members, and what are the responsibilities of team leaders?

3. *Diversity of Tree Species and Plant and Animal Communities.* Congressional intent concerning "diversity" seems clear: It will be considered in planning, and it is to be provided and maintained by management. The basic issue is whether the regulations should be very specific or provide discretionary authority in providing diversity through management practices and activities. Of further concern is whether to prescribe by regulation how to measure diversity, and should existing diversity be maintained and reduced only to achieve necessary multiple-use objectives.

4. *The Role of Economic Analysis.* NFMA requires economic analysis of management program alternatives to determine economic consequences, and that economic analysis will be undertaken at all appropriate places throughout the planning process. At issue is the nature of economic tests which might be made, and whether Congress intended that benefits must exceed costs for each and every proposed management practice.

5. *Determination of Lands Not Suited for Timber Production.* At issue is the role that economics should exert in determining lands not suited for timber production. Some critics argue that NFMA prohibits management practices where costs exceed benefits and that, as a consequence, timber harvesting may not occur where benefits are less than costs. Another interpretation is that a strict economic test is not required, but rather that economics be one of several criteria used to determine suitability for harvest.

6. *Departures (Limitations on Timber Removal).* The National Forest Management Act limits the sale of timber from each National Forest to a quantity which can be removed annually in perpetuity on a sustained-yield basis with discretion to depart from this policy in order to meet overall multiple-use objectives. This provision to depart is not in Section 6, but in Section 11 (or Section 13 of the amended RPA). This separation has raised the issue of whether the determination of the timber allowable sale quantity and departures should be handled outside of the forest planning process or as a separate and distinct step after the forest plan has been completed.

7. *Size of Openings Created by Harvest Cutting.* Controversy over timber harvest methods on National Forest lands sparked the NFMA legislation. Congress debated whether to mandate strict nondiscretionary precriptions for the management of National Forest lands and resources, or to require development of regulations to guide a planning process which would incorporate certain technical standards and guidelines to govern management activities. The latter course was taken, but the issue of prescription vs. planning process continued during development of the proposed regulations. The crucial issue is how specific should be the standards and guidelines for planning and managing each of the resources, for example, to prescribe in regulations the maximum size of openings created by harvest cuts, or instead describe the process by which the size of such openings would be determined on the basis of more site specific information.

8. *Public Participation.* The minimal elements of adequate public involvement are mentioned in the NFMA: the public must be adequately informed throughout the planning process; plans must be available in convenient locations; documents forming a plan must be integrated and located together to facilitate public review; and procedures for public participation must be identified in regulations covering the planning process.

The issues are the adequacy provided within the regulations for allowing the public to influence the decision process. Should the scope and level of public involvement be in regulations or discretionary? Should regulations define the agency as an active participant in representative democracy? In the past this role has been reserved for elected officials. Should public participation be required in certain steps of the planning process?

9. *Management of Wilderness Areas and Disposition of Roadless Areas.* NFMA provides little guidance about wilderness resource planning. Issues to resolve through the proposed regulations are the need to identify and appraise additional candidate areas and whether to establish maximum allowable levels of use.

10. *Coordination in Land Use Planning between Federal, State and Local Governments.* Planning by different entities that does not consider mutual goals and policies can frustrate National Forest management. The issues are the need to be aware of, evaluate, and consider the plans and policies of other planning bodies, and to involve appropriate representatives from them in National Forest planning activities.

11. *Buffer Strips in Riparian Zones.* At issue is the question of whether regulations should prescriptively designate a uniform protective strip around water bodies or provide criteria for protection that allows for local management variability.

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II. The Affected Environment

The affected environment is the entire National Forest System, approximately 187 million acres of Federal land administered by the Forest Service. The System consists of 154 National Forests totalling 183.4 million acres, 19 National Grasslands with 3.8 milion acres, and about 0.5 million acres of smaller purchase units, land utilization projects, and research areas. Initial reservation of public domain land contributed 160 million acres to the system with the remaining 28 million acres acquired by purchase, exchange, transfer, or other forms of acquisition.

The majority of land, 163.8 million acres, is located in the western portion of the United States, including Alaska. Approximately 23.9 million acres are located in the East. Although the land base is not evenly distributed throughout the country, National Forests and Grasslands provide an opportunity for all people to enjoy the many goods and services they offer. Lands within the NFS span a broad range of land forms and environment. For a discussion of land surface divisions, the reader is referred to work by Edwin H. Hammond.[1]

Vegetation. The vegetation of the National Forest System is as diverse as the plains, valleys, and mountains on which it grows.

For a thorough discussion about the relationship of vegetation to various generalized ecosystems in this Nation, the reader is referred to work by Robert G. Bailey.[2] Potential natural vegetation of the United States was mapped by A. W. Kuchler in 1966.[3] This mapping represents vegetation that would occur naturally in a given area if succession were not interrupted.

Air. The Nation's air quality is mandated by the Clean Air Act (Pub. L. 88–206) and its amendments. the 1977 amendments (Pub. L. 95–95) specified, among other things, certain Federal areas, such as national parks, wilderness, national monuments, national seashores, and other areas of special national or regional values, be designated for air quality protection.

The amendment adopted a system by which the entire nation would be designated specific air quality classes. Three categories were established—Class I, Class II, and Class III. Presently, each class represents a defined, allowable increase in particulate matter and sulfur dioxide. Class I allows the smallest pollution increment.

Clean Air Act Amendments initially classified all lands. Mandatory Class I status was given to international parks, national wilderness areas over 5,000 acres in size, national memorial parks that exceed 5,000 acres, and national parks that exceed 6,000 acres and were in existence on the date of enactment of the 1977 Clean Air Act Amendments. All other areas, (except those redesignated Class I by regulation prior to August 7, 1977) were designated Class II.

Section 164 of the Act gives State and federally recognized Indian Tribes authority to redesignate classifications for areas within their geographic boundaries. This authority was constrained to the extent that mandatory Class I areas could not be redesignated and certain other areas may be redesignated only as Class I or II.

Environmental Amenities. Perception of our environment is primarily a visual experience, but our senses of smell, taste, touch, and hearing contribute to complete our perception of environmental amenities. Maintenance of air quality provides environments pleasant to our senses of smell and enhances opportunities to enjoy expanded views and vistas.

The landscape character of this Nation can be described in terms of land and rock forms (topography), waterbodies, and vegetative patterns. These are components of the visual resource that, when seen in varying combinations, can be used to evaluate the visual quality of an area. Maintenance and protection of the visual resource is an important factor for the millions of people who view National Forests, and management of this resource is an important part of total land and resource management within the National Forest System.

Noise, or more precisely the lack of it, is an amenity savored by the American public. Complete solitude may usually be obtained within wilderness and more remote roadless areas. A quite, relaxed environment can be found throughout most National Forests and Grasslands. But other users often prefer noise and bustle. The management challenge for the National Forest System is to provide a cross-section of environments the many publics wish to use.

Resource Use. Management of the lands and renewable surface resources of the National Forest System emphasizes the continuous production of all their values for the American people. In contrast, management emphasis for lands administered by the National Park Service is preservation of areas of natural, historical, recreational, or scenic attractions. The National Wildlife Refuges are managed to protect various wildlife species.

For a more complete description of the resource uses made of an planned for on the National Forest System, the reader is urged to review the Draft Environmental Impact Statement for the 1980 Update of the Forest Service RPA Program. This document, released for public review on March 27, 1979, is available from Forest Service Regional Offices and headquarters in Washington, D.C.

Cultural Resource. Development of this Nation can be traced through many remaining archeological and historica sites, an invaluable asset for study of

[1] Hammond, Edwin H. 1964. Analysis of Properties in Land Form Geography: An application to Broad Scale Land Form Mapping. Annals of the Association of American Geographer. Volume 54:11–23.

[2] Bailey, Robert G. 1976. Ecoregions to the United States. U.S. Department of Agriculture, Forest Service. Map and Discussion.

[3] Kuchler, A. W. 1966. Potential Natural Vegetation Map. U.S. Department of Interior, Geological Survey. Map and Discussion.

what has preceded us. However, the cultural resource on National Forests and Grasslands is neither fully discovered nor totally understood. Historical sites are being discovered as we continue to know more of this land. Though the resource has not been completely inventoried, it is protected by law and is recognized as an integral part of the total Forest Service land and resource management program.

Socio-economic Environment. This is related to population and demand for goods and services. Our 220 million residents rely upon the wealth of natural resources this country can provide for food, shelter, and employment. In addition, many seek escape from normal activities that surround them and find relief in natural attractions that abound in mountains, lakes, and valleys of this diverse land. The National Forest System provides both physical needs essential for comfort and diversified environments that promote quality of life.

Direct cash receipts from the National Forest System in fiscal year 1977 totaled a little more than $691.5 million. Timber receipts were by far the largest source, with receipts from mineral leases and royalties second. Fees from grazing and other permits were third. Twenty-five percent of the receipts received were returned to counties and States where the revenue originated for the purpose of funding schools and developing secondary roads. Additional receipts in the form of deposits and value added bring the total to more than $1 billion.

Total dollar reciepts are not a large factor when compared to the Nation's income, but they do represent much more than returns to the U.S. Treasury. The direct benefit created by the sale and use of National Forest and Grassland resources accounts for more than 180,000 person-years of employment. Indirect benefits from supporting industries add additional employment and dollar incomes to this total. Investments in transportation systems, cooperative assistance, and other non-qualifiable factors are also positive benefits derived from the National Forest System.

For many, the National Forest System is a special place remembered because of a recreational experience. It has symbolic meaning for those living within its shadows or concern for management of this Federal land, whether they depend upon it, have intimate knowledge of it, or only recogize it as "being there."

Land use decisions can affect each and every individual. Those with an economic or specialized recreation interest can be affected if areas are identified for wilderness use. Others with more of a preservation orientation may be disturbed if a favorite roadless area becomes available for use of its commodity resources, and roads are built into the area. Various uses of land are complex in nature and at times conflicting. What is ideal for one group of individuals may adversely affect others. Within this framework, the process for planning and managing the National Forest System must occur.

III. Evaluation Criteria

Criteria for evaluating alternative regulations are based primarily on the specific guidelines and standards identified in the National Forest Management Act. The options for developing the regulations are evaluated on the basis of their relative effectiveness in carrying out the intent of the law. This requirement not only narrows the range of available alternatives but also reduces the degree of evaluation required in proposing the regulations. The following evaluation criteria will be applied:

1. *NFMA Requirements.* Alternatives will be evaluated on the basis of how well they achieve the specific requirements of the National Forest Management Act. In some instances it may be necessary to interpret the "intent" of the Act in order to make this evaluation.

2. *Scientific and Technical Adequacy.* A number of issues contained in the proposed regulations relate to scientific and highly technical aspects of natural resource management. While there may be general agreement among the scientific community on most of these issues, some disagreement does exist and much political controversy has surrounded these technical aspects of management. The scientific and technical aspects of various alternatives must be separated from the political controversies which surround them, and evaluated solely on the basis of generally accepted scientific knowledge.

3. *Acceptability to Diverse Publics.* General acceptance of the regulations is essential if the planning process is to be responsive to the specific concerns identified during the legislative history of the Act. Alternatives will be evaluated on the basis of input from public participation. Acceptability will continue to be determined as the preferred alternative regulations are published in the Federal Register for public review and comment.

4. *Environmental Protection.* The Act specifically requires that certain environmental protection standards be established. Alternatives will be judged on the basis of the adequacy of the environmental protection afforded by the standards. This will be expressed in terms of how the alternatives affect overall environmental quality.

5. *Timber Supply.* The RPA requires development of a Program which is to provide for the protection, management, and development of the NFS. This program and alternatives, if any, shall include specific identification of outputs and benefits, and recommendations which recognize the need to protect and improve soil, water and air quality; and which state national goals in recognition of the interrelationships between and interdependence within the renewable resources managed and produced in the NFS. The NFMA provides for a planning process as part of the RPA Program, and requires guidelines or standards to govern management activities which affect commodity production, particularly timber. Alternatives for planning discussed in this DEIS affect timber production and hence supply in various ways. Alternatives will be judged on the basis of their tendency to maintain or increase supply goals consistent with the current RPA Program.

6. *Administrative Requirements*—(a) *Compliance with Executive Order No. 12044.* Alternatives will be evaluated against direction that regulations be as simple and clear as possible; that regulations shall achieve legislative goals effectively and efficiently; that regulations shall not impose unnecessary burdens on the economy, on individuals, on public or private or organizations, or on State and local governments.

(b) *Accountability.* Evaluation will be made as to how visible accountability is made through regulation in terms of who is responsible for actions and decisions.

(c) *Capability to Implement.* Forest Service programs and personnel requirements are subject to constraints set by Congress and the Executive branch. Alternatives will be evaluated in light of personnel and skill requirements, and time required to undertake and complete planning actions specified.

(d) *Flexibility.* In the application of resource management standards and guidelines, it must be recognized that local resource conditions vary considerably, thus necessitating special requirements or exceptions. Alternatives must be evaluated on the basis of the extent to which they provide adequate safeguards against resource damage or abuse and the extent to which they permit local management discretion.

Procedural standards necessary to address special needs and exceptions must be judged on the basis of their ability to maintain quality, conformity, and adequate review of management actions while not burdening the entire management system with truly trivial details.

IV. Alternatives Considered

A variety of approaches could be used to develop regulations in response to Section 6 of the NFMA. Variations within the actual planning process, the definitions of specific terms, and establishment of various standards could be developed in numerous ways.

There are at least two sets of alternatives to develop and consider. One set concerns planning process. The other concerns regulatory language, style, and structure in terms of describing the rules which are to be applied through the planning process to management of National Forest System lands and resources.

The Planning Process Framework. The Forest Service has been involved since its creation in the development of a land management process. This process for allocating resources, determining outputs, and measuring impacts and tradeoffs has evolved from practical application mostly at the forest level. Intense public interest in management of the National Forests has produced modifications in the evolving planning process. This public interest culminated in passage of the NFMA which requires the Forest Service to define, through rulemaking, a unified planning process with supporting guidelines and standards to be implemented on every administrative unit of the National Forest System. NFMA thus created the need to evaluate current planning and decisionmaking in detail and set the stage for developing the function and content of land management plans. If the present planning system is to be improved, as NFMA strongly implies, then knowledge is needed about general planning theory. This would provide a conceptual basis for developing operational planning process alternatives.

The advantages and limitations of varous planning process concepts and approach possibilities are described in material appended to and made part of the minutes of the May 24–26, 1977.

Committee of Scientists Meeting. A brief description of planning concepts and approaches appears in the Appendix of this DEIS.

The alternative regulations presented in this DEIS are a composite structure of mixed scanning and the systems theory and mutual causal approach. This selection best provides for the interdisciplinary approach to integrated planning mandated by NFMA.

Alternatives for Regulation Language to Address Central Issues: NFMA mandates development of regulations to set forth a process for the development, adoption and revision of National Forest System land and resource management plans. The regulations are also to contain standards and guidelines to govern the conduct of management activities. As a consequence of this mandate, a "no change" alternative was not created for presentation, discussion, and evaluation in this DEIS. The only realistic "no change" alternative might have been planning as currently practiced according to direction in Forest Service Manual 8200. The continuation of this direction is clearly not what Congress intended by enacting NFMA.

There are an infinite variety of ways for language to capture the intent of NFMA in management guidelines and standards. The alternatives presented in this statement cover language to address the central issues and concerns presented in Section 1.

The various alternative language sets proposed are described below and are arranged by source in the order corresponding to the eleven central issues identified in Section I. However, in the interest of brevity, and to facilitate analysis, some of the language presented is in summary form. All of the original material is available for review in its original form at Forest Service Headquarters, in Room 4021 South Agriculture Building, Washington, D.C. Except for the text of the Committee of Scientists Report and comments received from the pubic, this material is reproduced in the Appendix of this DEIS. The reader is urged to refer to it simultaneously with the study and review of this statement. There are seven alternatives. Each is briefly described or characterized as follows:

Alternative 1—Forest Service Draft Regulations (**Federal Register**, August 31, 1978)

The original draft regulations are largely procedural in nature. The process which is to be followed in making land management decisions is outlined with greatest emphasis upon planning at the forest level. National, regional, and forest levels of planning are implied; however, the draft contains very little detail for regional planning. For the most part, the resource standards and guidelines which appear in the draft can be characterized as broad statements of concerns which must be addressed throughout the planning process. For several issues, the draft language is merely a restatement of the NFMA requirements. The management standards for determining lands not suitable for timber production are among the most detailed of all the standards presented. the draft requires both biological growth minimums and economic efficiency considerations. The biological growth minimums are not specified nationally, but are required to be stated in the regional plans. Protection standards for streams and lakes are not specified, but are required to be stated in the forest plans. Standards for selection of silvicultural systems and for size limits for openings created by cutting are to be determined by the regional planning process. Departures would be handled at the forest planning level. Throughout the draft, the primary emphasis is upon procedures to be followed and concerns to be addressed, all within a highly flexible framework which would permit a great deal of local (forest level) management discretion. It is functional in its approach to formulating standards and guidelines, and not specific that the determinations of localized standards and guidelines is part of, and as a consequence a result of, the planning process.

Alternative 2—Environmental Groups' Proposals for § 219.10(d) (**Federal Register** August 31, 1978)

This alternative addresses only two issues; the determination of lands not suitable for timber production, and procedures for allowing departures from nondeclining yield. This proposal specifies a national minimum biological growth potential for timber production. Under the requirements of this alternative, no timber harvesting would occur for at least 10 years on National Forest System lands on which the biological growth potential is below 50 cubic feet per acre per year growth of industrial wood in natural stands. There are several other factors to be used in the determination, including size and location of isolated tracts, nonmarketable species, slope and soil stability. In addition to these constraints, an economic efficiency test is required for the determination. Lands are not to be harvested for at least 10 years if direct benefits from growing and harvesting timber are less than the anticipated direct costs to the government, including interest on capital investments. Direct costs and direct benefits are defined. This alternative stipulates that departures may be considered only after the forest plan has been approved. In other words,

departure determinations would not be permitted as part of the Forest land and resource management planning process. All proposed departures are submitted to the Chief, Forest Service, via the Regional Forester. If approved, the Chief would then direct the forest supervisor to prepare the proposals and a draft and final EIS. Final approval for all departures rests with the Secretary.

Alternative 3—Timber Groups' Proposals for § 219.10(d) (Federal Register August 31, 1978)

This alternative addresses two issues: determination of lands not suitable for timber production, and departures from nondeclining yield. This proposal emphasizes the role of timber production targets assigned to the forests through the RPA Program. Consequently, suitability determination (as opposed to nonsuitability) is stressed and is recognized as being largely dependent upon the ability of the forests to meet the assigned targets. A minimum biological growth potential is to be specified by the regional plan, and economic analysis is required to determine if lands are efficient for producing timber. Lands would not be used for timber production if those lands were not needed to meet the assigned targets and they were not efficient for producing timber. Departures would be considered and formulated if no timber harvest alternatives could achieve the assigned goals, or if implementation of the alternatives would result in local economic instability or inadequately maintain local or national supply needs. Departures would not require approval above the forest planning level.

Alternative 4—Committee of Scientists Final Report to the Secretary (February 9, 1979), and Recommended Regulations attached thereto.

The Committee of Scientists reviewed the original draft regulations and recommended alternative language and, in some instances, completely new material for inclusion in the regulations Generally, the Committee's proposals expand and add specific detail to the original draft (August 31, 1978) regulation. A number of organizational changes for regulation material are also suggested. The Committee's revisions include the addition of considerably more detail to the relationship among planning levels (national, regional, and forest), specifications for the inderdisciplinary planning approach, rationale and requirements for public participation, more substantial requirements for coordination, and more specific requirements for resource standards and guidelines, including wilderness management, riparian zones, fish and wildlife, and diversity. The Committee has proposed a new and detailed treatment of regional planning similar to forest planning. The Committee's recommendations for lands not suited for timber and for departures, similar to those of the August 31, 1978 draft, are more specific and clear. An added requirement for departures specifies that each must be approved by the Chief, Forest Service. Though the Committee recommends a 30-meter buffer strip for riparian zones, it agrees with the August 31, 1978 draft that the maximum size for openings created by timber cutting be set by regional plans or regional silvicultural guides, not be set as a national standard.

Alternative 5—Public Comment.

Many of the public comments represent extreme differences of opinion as well as broad philosophical differences for many issues. The number of detailed comments offered and the wide-ranging scope of many do not lend themselves to a systematic description. The interdisciplinary team has conducted a thorough review of all public comments received, both from hearings and from written responses. It is important to note that there does appear to be consensus for several broad issues. These include the value of an interdisciplinary approach, the inadequacy of the minimum of two specialists for the interdisciplinary team, the inadequate treatment of regional planning, and the value of public participation and coordination requirements. Most disagreement among the public appears to be centered around the lands not suitable issue, procedures for allowing departures, the question of whether or not maximum size openings should be set by national regulations or by the regional or forest plan, and the issue of determining protection standards for streams and lakes. On balance, the public comments reflect one common theme: both the general public and special interest groups consistently expressed the opinion that the regulations should include more specific, detailed requirements for planning and management. This concern is found throughout the comments and applies equally to those commentors who agreed and to those who disagreed with different points raised by the August 31, 1978 draft. This concern was not confined to the consideration of individual issues, nor was it directed solely at the resource management standards and guidelines. Comments which reflect this theme were directed toward almost every major issue, including many of the purely procedural requirements specified in the original draft.

Alternative 6—The Preferred Alternative: Revised draft regulations, with provisions for nationally established standards for buffer strips and harvest cut openings.

This alternative is the end result of public involvement and work by the Committee of Scientists with the Forest Service in the process of developing the regulations required by NFMA. A number of organizational changes, the incorporation of new material, and more specific direction have considerably changed the alternative compared to the original draft of August 31, 1978. Most of the Committee of Scientists recommendations are reflected in this alternative. It is important to point out here that these recommendations were also strongly influenced by interactions of interest groups with the Committee. Key substantive coverage by this alternative includes the following: More detail concerning the relationships among planning levels; detailed provisions for the conduct of regional planning; more thorough treatment and clarity of purpose concerning public participation and coordination activities; more specific concerning determinations of lands not suited for timber production with the direction that biological growth potential minimums be set in regional plans, and lands be ranked for their economic efficiency for producing timber; requirements that departures from non-declining yield be analyzed through the NEPA environmental assessment process and be approved by the Chief; setting of maximum size of harvest cut openings (40-, 80-, or 100-acre maximums depending on geographic location) with exceptions provided for through regional plans where larger openings will produce more desirable combinations of benefits; and special protection of streams and lakes by requiring special attention to strips 100 feet along both sides of perennial streams, lakes and other bodies of water. Organizational changes include addition of material concerning regional planning, and separation of planning process criteria from resource management standards and guidelines. The planning process has been clarified and expanded explicitly to cover national and regional, as well as forest level planning.

Alternative 7—Revised draft regulations identical in all respects to Alternative No. 6 except that standards for riparian buffer zones and harvest cut opeing sizes will be established through regional planning process.

Alternatives by Issues: Regulatory language sets follow for the eleven selected issues discussed in Section I. Since Alternatives 6 and 7 are idential except for issues 7 and 11, Alternatives No. 7 is discussed only for these two issues.

Issue No. 1—Conceptual Framework for an Integrated Planning Process.

Alternative 1: The August 31, 1978 draft regulations are a mix of approaches with emphasis given to a "process" oriented approach. Three levels of planning (forest, regional, and national) are described in terms of information flows. However, the planning process is described only in terms of forest level planning and is not related to the other two levels.

Alternative 2: This issue is not addressed.

Alternative 3: This issue is not addressed.

Alternative 4: The Committee of Scientists endorses the "process" approach as opposed to a "prescriptive approach." It is recommended that the important interactive nature of the three levels of planning be conveyed in the regulations, and that the regulations also specify procedures for developing the regional plan and its content similar to requirements specified for forest plans.

Alternative 5: Most comments relating to this issue concerned the relationship between national and other plans. Many commenters objected to what they considered to be planning from the "top/down" to the forests. A number of commenters pointed out that more specific language was needed to insure that local activities are based upon local capability and not simply assigned targets from the regional plan or the RPA national Program. The treatment of regional planning in the draft regulations was considered to be grossly deficient. It was suggested a complete revision be made to include this issue and be mandatory that an environmental impact statement be prepared for each regional plan.

Several commenters proposed that more specific language be included to ensure that timber plans would be integrated with other planning efforts.

Alternative 6: The recommendations of the Committee of Scientists have been adopted in the preferred alternative. In addition, a great deal more detail has been added to planning criteria and requirements throughout the entire planning process. Although the revised regulations contain many more "prescriptive" requirements than the earlier draft, the revised version is more "process" oriented than the original draft. A completely new section devoted entirely to a description of the "planning process" has been added. There is also an expanded, much more detailed treatment of the role and function of national, regional, and forest level planning. The interrelationships among the planning levels have been outlined. There are two new separate sections devoted to regional planning. One describes in detail the regional planning procedure and the other establishes criteria for regional planning actions. The requirements for forest planning have been expanded and are detailed in the same manner as those for regional planning. Provisions are made through regional planning to provide a range of objectives which forest plans must address through the planning process.

Issue No. 2—The Interdisciplinary Approach to Planning.

Alternative 1: The August 31, 1978 draft states that an interdisciplinary approach shall be followed. With the exception of a requirement for two or more specialties to be represented, no specific requirements for team make-up or qualifications are given. Complete discretion is given to the forest supervisor for deciding both composition and qualifications.

Alternative 2: This issue is not addressed.

Alternative 3: Proposal does not address this issue.

Alternative 4: The Committee recommends more specific language on:

1. Description of interdisciplinary process;
2. Actual philosophy that is to guide the team; and
3. Requirements for composition of team and for qualifications of members.

Alternative 5: There was general agreement that an interdisciplinary approach was needed throughout the planning process. A frequent criticism of the draft regulations with respect to this issue was there were too few specific guidelines for composition of the team and qualifications for team members. There was almost universal agreement that the minimum of the two disciplines was inadequate. The comments contained some disagreement concerning the degree of authority that the "responsible Forest Service official" could or should have over the interdisciplinary team. It was suggested that the regulations should include some means to encourage outside consultation and use of non-Forest Service expertise, as well as more coordination with State and local resource specialists. Some commenters suggested that State and local government representation on the interdisciplinary team should be required.

Alternative 6: Most of the Committee of Scientists' proposed language has been adopted. The role and responsibilities of the team have been more clearly specified. This includes requirements for composition of the team and for qualifications for team members.

Issue No. 3—Diversity.

Alternative 1: The August 31, 1978 draft requires that inventory information include quantitative data for determining species and community diversity. The forest planning section also specifies that each management alternative include provisions for diversity and that effects of each alternative on diversity be estimated. There is also a specific requirement to estimate diversity effects for fish and wildlife. Methods or measures of diversity are unspecified.

Alternative 2: This issue is not addressed.

Alternative 3: Proposal does not address this issue.

Alternative 4: The Committee generally supports treatment of diversity in the regulations. Recommendations for clarifying and strengthening the language in a number of places are included. The Committee recommends against requiring the use of quantitative diversity indices. In addition, the Committee adds to the regulations specific language to ensure that planned type conversions must be justified by detailed analysis showing biological, economic, and social consequences.

Alternative 5: Some commenters suggested that the draft regulations were not specific enough and that the requirements did not meet the intent of the NFMA. The concern was voiced that the regulations should have dealt more specifically with forest-type conversions (i.e., conversion of Eastern hardwood forests to softwoods). It was suggested that, with few exceptions, the regulations should prohibit forest-type conversions. Some commenters stressed the need for closer State and local cooperation on the general issue of diversity. The need for designating "research natural areas" and other types of preservation areas was noted.

Alternative 6: The Committee of Scientists' recommendations for clarifying language and establishing criteria have been adopted for this alternative. Management standards and guidelines for diversity have been expanded with more emphasis on type conversions. Additional requirements have been specified to ensure coordination with other Federal, State, and local agencies. Specific requirements for designation and

management of special interest areas and research natural areas have been added.

Issue No. 4—The Role of Economic Analysis.

Alternative 1: The August 31, 1978 draft regulations suggest that population and employment data be collected, that demand projections be used, and require that expected benefits be included in this analysis. Specific requirements for analysis include effects on distribution of goods, services and uses, changes in payments to local governments, income, employment, and economic efficiency. Direct and indirect benefits and costs are to be estimated using standards and practices to be established later by the Chief, Forest Service. Economic impact estimates of different range management alternatives on local livestock industry are also required. It is required that lands be classified as not suitable for timber production if "an economic • analysis reveals that the lands are not efficient for producing timber."

Alternative 2: The overall issue of economic analysis is not addressed. Economic efficiency analysis for the classification of lands suitable for timber would be provided for in this alternative as part of the regulation recommended under Issue No. 5 (See Issue No. 5, Alternative No. 2.)

Alternative 3: The proposal does not address the general issue of economic analysis. Some economic evaluation requirements are included in "suitable lands" requirements. (See Issue No. 5, Alternative No. 3.)

Alternative 4: The Committee concludes that language in the draft regulations dealing with economic analysis is often vague and must be improved if direction is to be clear. The Committee has proposed more specific direction for ensuring that competent economic analysis occurs in all appropriate places in the planning process and are displayed for consideration of the economic consequences of alternatives.

Alternative 5: Some commenters who addressed this issue declared that the draft regulations were seriously deficient with regard to analysis requirements and specific standards. It was suggested that some type of economic efficiency analysis should be required to ensure that all activities would yield the maximum net public benefits possible. Many of the suggested revisions to the regulations would require the Forest Service to conduct rather detailed analysis of benfits and costs for all planning activities, including evaluation of both market and non-market goods. Some disagreement was expressed regarding the importance of local economic stability concerns. Many felt that local enconmic impacts should be a prime consideration in the evaluation of plans while others considered this to be an inappropriate function of Forest Service planning. It was suggested that, in addition to an "environmentally preferable" alternative, the plans should include an "economically preferable" alternative. Some commenters stressed the need for detailed economic analysis for potential wilderness areas and for present and potential mineral and energy development areas. The need for a more thorough treatment of present and future "demand assessment" for both market and non-market goods was also noted.

Alternative 6: Substantial requirements relating to economic efficiency analysis, evaluation criteria, and guiding principles for management have been added in this alternative. Additional analysis requirements have been spedified for regional and forest planning, including supply and demand assessments and economic impact evaluation for alternatives considered. The role of economic analysis in the determination of lands not suitable for timber production and consideration of community stability objectives have been clarified. Requirements have been specified for economic evaluation of values foregone by wilderness designation.

Issue No. 5—Determination of Lands Not Suited for Timber Production.

Alternative 1: The August 31, 1978 draft regulations outline a process for determining lands not suited:

1. Lands are considered "not capable" if biological growth potential is below a minimum set by the regional plan.

2. Lands are "not available" if they have already been designated from some other use.

3. Lands are "not suited" if timber production would result in adverse impacts upon soils, productivity, watershed, threatened or endangered species, or cannot be restocked in 5 years.

4. Lands that have been classified as "capable, available, and suitable" are to be further reviewed during the formulation of alternatives stage of planning and are classed as "not available" if management objectives for the area preclude timber production or limit production to the point where silvicultural standards cannot be met.

5. Lands that are classed as "capable, available, and sutiable" may be classified as "not suited" if an economic analysis reveals that these lands are not efficient for producing timber.

6. No timber harvesting can occur for at least 10 hears on lands "not suitable."

Alternative 2: This alternative includes the following limits for identifying timber producing lands:

1. Lands are "not capable" if biological growth potential is below 50 cubic feet per acre per year of industrial wood in natural stands (higher standard may be established by regional plan).

2. "Not available" if lands are administratively or legislatively withdrawn.

3. Lands are "not suited" if:

A. They consist of isolated tracts of commerical forest land (stringers) such that organizing and scheduling periodic harvest is impractical;

B. They contain non-marketable timber species;

C. Slope is equal to or greater than the angle of repose of the soil, or the critical angle for slope stability;

D. Lands have soild types for which erosion rates during the first 10 years following logging would cause loss of soil greater than the amount that would be generated naturally through periodic weathering during one period of rotations; or

E. No technology has been developed or is expected to be developed in the next 10 years, that is or will be available and feasible for use in the forest during such period, that will enable timber production from the land without significant or long-lasting resource damage to soil, productivity, or watershed conditions; without significant adverse impact on threatened or endangered species; and with assurance that such lands can be adequately restocked within 5 years after final harvest.

4. Lands classified as "capable, available, and suited" for timber production are further identified as:

A. "Not available" for timber production if those lands will be managed to meet objectives of the forest plan that either preclude timber production or limit timber production to the point where silvicultural systems and resources could not be employed within the standards and guidelines for silvicultural systems and resources protection contained in these regulations and in the forest plan;

B. "Not suited" for timber production if the anticipated direct benefits from growing and harvesting timber are less than the anticipated direct costs to the government, including interest on capital investments required by timber production activities. Specific standards and practices for making the economic analysis required by this section are to be established by the Chief, Forest

Service in regulations which shall be effective on the same date as these regulations, and shall be applied uniformly and nationally, provided that in determining net benefits from timber production the following principles shall be followed:

(1) Direct benefits include the anticipated revenue from harvesting timber crops, and any benefits that can be reasonably attributed to increased production of other services such as forage, water flows, and wildlife;

(2) Direct costs include the anticipated investments, maintenance, and operating management and planning costs attributable to timber production activities, and any costs that can be reasonably attributed to decreased production of other services and to mitigation measures necessitated by the impacts of timber production. In the case of roads, only the additional investments in the road system required by timber growth and harvesting activities are to be included in direct costs; and

(3) The rate of interest used to discount future benefits and costs shall be equal to the rate expected for alternative uses of Federal funds, as set by the Office of Management and Budget.

5. No timber harvesting shall occur on lands classified as "not capable" or "not available," for timber harvesting and for 10 years on lands "not suited," excluding salvage sales and other special circumstances.

Alternative 3: The alternative makes a key factor upon which suitability determinations will be made on the production goals assigned to the forest through the regional plan from the RPA Program. The proposal requires that timber producing lands be identified in the following manner:

1. "Not capable" if biological growth potential is below minimum standard defined by the regional plan.

2. "Not available" if the land is legislatively or administratively withdrawn from timber production.

3. "Not suited" if technology is not now available or none is expected to be developed within the next 10 years that would permit harvesting which meets silvicultural guidelines.

4. Lands classified as "capable, available, and suited" will be further reviewed and identified as "not suited" if those lands are not needed to meet production goals from the regional plan and "lands are not efficient for producing timber." Additional economic analysis requirements for this determination include: "Any economic analysis will be based on the assumptions that the lands are managed primarily for timber production and are in fully regulated condition; that technically feasible management practices are applied which have a net economic benefit given anticipated future price levels and cost levels reasonable and directly related to efficient and prudent timber management; and that the cost of administration, protection, and access are borne proportionately by those other resource values produced while the land is under primary management for timber."

Alternative 4: The August 31, 1978 draft provides for a 5-step process for identifying lands not suited. The Committee does not consider this adequate and recommends the following procedure:

1. Lands are screened to determine if they are "available" for (i.e., not already designated for other use) timber production;

2. "Available" lands are then screened to identify areas that are "not suitable" for timber production because of physical, technical, biological (including a minimum productivity standard), or environmental factors;

3. Lands passing these tests are then subjected to economic analysis and ranked to determine their relative economic efficiency for commercial timber production; and

4. Alternative land management plans are formulated, lands are allocated to timber harvest on a cost-effective basis, and these allocations then may be adjusted and revised on the basis of multiple-use considerations.

Alternative 5: There was a great deal of disagreement in the public comments regarding this issue. Some felt the draft regulations were too restrictive while many others considered the regulations far too open-ended. A number of comments suggested that more specific requirements for economic efficiency criteria for suitable lands be included. Some commenters stated that the Environmental Groups' proposal would fulfill the requirements of NFMA, but that this proposal was unrealistic and too inflexible. It was suggested that this determination should consider factors such as slope, angle of repose of the soil, soil stability, areas of isolated tracts and non-marketable species. The biological growth standard for determining suitable lands was a major area of conflict. A number of possible revisions were suggested including regulation requirements for minimum growth standards. A minimum standard of 20 cubic feet acre per year was frequently mentioned. Other proposed limits were 50 cubic feet per acre per year, 50–60 in undeveloped areas and, 25–30 in developed areas. Other commenters proposed that standards not be set in regulations, but in either the regional plan or forest plans.

Alternative 6: The treatment of this issue in this alternative is based upon the Committee of Scientists' recommended language and organization. Minimum biological growth standards to be used in the determination of timber production capability will be established by the regional plan using the criteria specified in the regulations. Lands with potential for commercial timber production will be evaluated using the assumptions and criteria in the regulations to determine their relative economic efficiency for this use. Lands which are more "efficient" (relative to other lands) will be allocated for timber production before less "efficient" lands are used. There is no minimum economic return specified in the regulations, nor is there a firm requirement that net benefits must exceed costs for this use.

Issue No. 6—Departures.

Alternative 1: The August 31, 1978 draft requires that the allowable sale quantity be determined on the principle of sustained yield and only based on lands "capable, available and suitable." The following requirements for all alternatives are specified:

1. For the base harvest schedule the planned sale and harvest for any future decade must be equal to or greater than the planned sale and harvest for the preceding decade, providing that the planned harvest is not greater than long-term sustained yield capacity (non-declining flow).

2. Long-term sustained-yield, base timber harvest schedules, and departures are subject to the following guidelines:

A. "For the long-term sustained-yield capacity and the base harvest degree of timber utilization consistent with the goals, assumptions and standards contained in or used in preparation of the current Renewable Resource Program and regional plan. For the long-term sustained-yield capacity, the management and utilization assumptions must reflect those projected for the fourth decade of the regional plan. For the base harvest schedule, the management and utilization assumptions must reflect the projected changes in practices for the four decades of the regional plan. Beyond the fourth decade, the assumptions must reflect those projected for the fourth decade of the regional plan."

B. "For departure alternatives to the base harvest schedule which provide outputs above the current regional plan, assume an appropriate management intensity."

C. "In accordance with the established standards, assure that all even-aged stands scheduled to be harvested during the planning period shall generally have reached the culmination of mean annual increment of growth. Mean annual increment must be based on management intensities and utilization standards expressed as units of measure consistent with the regional plan, Exceptions to those standards are permitted for the use of sound silvicultural practices, such as thinning or other stand improvement measures; for salvage or sanitation harvesting of timber stands which are substantially damaged by fire, windthrow, or other catastrophe, or which are in imminent danger from insect or disease attack; for the improvement of age-class distribution; or for the removal of particular species of trees after consideration has been given to the multiple uses of the area being planned and after completion of the public participation process applicable to the preparation of the forest plan."

D. "For all harvest schedules, achieve a forest structure by the conclusion of the scheduling period that will enable perpetual timber harvest thereafter at the long-term sustained-yield capacity, consistent with the long-range multiple-use objectives of the alternatives."

3. Departures should be considered under any of the following conditions:

A. "None of the timber harvest alternatives formulated has the capacity to produce the goods, services, or uses to meet objectives specifed for the area by the regional plan."

B. "Attainment of the multiple-use objectives of the forest plan will be enhanced by more rapid and efficient achievement of the long-term sustained-yield capacity of the forest owing to present forest structure or by reducing high mortality losses."

C. "Implementation of the base harvest schedule would cause instability or dislocation in the economic area in which the forest is located."

4. The proposal also specifies how the harvest schedule is to be selected:

A. "Selection of a harvest schedule must be made following a comparison of management alternatives * * * This comparison must include an evaluation of the sustained-yield goals, silvicultural standards and guidelines, and the effects of timber removal on other resources * * * The selected harvest schedule provides the allowable sale quantity, or the quantity of timber that may be sold from the area of land covered by the forest plan for the plan period. Within the planning period, the volume of timber to be sold in any one year may exceed the average annual allowable sale quantity so long as the total amount sold for the planned period does not exceed the allowable sale quantity."

Alternative 2: The proposal would not permit departures within the regular planning process, but specifies that a forest plan may be amended to increase or decrease the allowable sale in the following manner;

1. Regional Forester may ask the Chief, Forest Service to "consider" departure if departure would "enhance" multiple use objectives by:

A. Improving age-class distribution;

B. Reducing high mortality losses; or

C. Reducing conflicts.

2. The Regional Forester must submit a report giving information to support recommended departure.

3. The Chief may agree to "consider" departures and direct the Forest Supervisor to prepare proposals, and draft and final EIS's are required for proposals.

4. In formulating proposed departures, the following is required:

A. Each departure proposed shall reflect management direction established in the forest plan regarding constraints on harvest, type of silvicultural systems to be used, and silvicultural standards and guidelines. Lands that would be affected by the increase or decrease in harvest level shall be specifically identified;

B. Each departure shall assume a degree of timber utilization and management intensities consistent with those assumed in the preparation of the base timber harvest schedule and demonstrate that forest structure by the end of the planning horizon would enable perpetual harvest thereafter at the long-term sustained-yield capacity; and

C. Each departure shall be evaluated in accordance with regulations covering estimated effects of alternatives and compared with the forest plan. Such comparison shall include an evaluation of the consistency of the departure with the multiple-use objectives of the forest plan.

5. The Secretary, after review of the final EIS, must approval all departure proposals.

Alternative 3: The proposed alternative altered the provisions set out in Alternative No. 1 in the following ways:

1. For base timber harvest schedule(s) "the planned sale and harvest for any future decade must be equal to or less than the long-term sustained-yield capacity" rather than the preceding decade and "the total harvest must also be the maximum achievable from the forest during the first rotation."

2. Add an exception to the standards for assuring that all even-aged stands scheduled to be harvested generally have reached the culmination of mean annual increment of growth—"for the improvement of age-class distribution."

3. "For all harvest schedules, other than the base harvest schedule, achieve a forest structure by the conclusion of the forest rotation that will enable sustained-yield capacity, consistent with the long-range multiple-use objectives of the alternatives."

4. An additional condition for departure was added. "Implementation of an alternative plan would provide greater public benefits, including, but not limited to a combined flow of public and private timber that better meets local and national demands or achieving to the extent possible a better balance between expenditures for timber management and the return to the Federal Government from the sale of timber and the value of other related uses."

5. Additional factors were added in the step for selecting the harvest schedule:

A. "Selection of harvest schedule must be made following a comparison of management alternative and the public benefit to be achieved from each."

B. "The responsible Forest Service official shall describe in writing the justification for the selection made and the standards used."

Alternative 4: The Committee recommends adoption of the principles in the August 31, 1978 draft with the addition of:

1. Statement of basic policy with regard to timber harvest scheduling;

2. Language to make clear that departures from the base harvest schedule and the planning required for departures is discretionary; and

3. Authority for approving any departure above the base timber schedule should lie with the Chief.

Alternative 5: A number of commenters stated that the regulations should simply prohibit departures. Others suggested that very detailed criteria should be provided to ensure that departures are only allowed under truly exceptional circumstances. Some commenters stated that detailed criteria would be impractical. There was a good deal of conflict regarding the issue of

whether or not local economic conditions should be considered as a justification for departures.

Alternative 6: The Committee of Scientists' proposals have been adopted. With the exception of specifying that the Chief, Forest Service, must approve departures, this alternative for the regulations is similar to the original draft requirement concerning this issue. Consideration of local economic disruptions has been maintained.

Issue No. 7—Size of Openings Created by Harvest Cutting

Alternative 1: The August 31, 1978 draft requires that maximum size limits for clearcutting will be determined through the regional planning process.

Alternative 2: This issue is not addressed.

Alternative 3: The proposal does not address the issue.

Alternative 4: The Committee alternative agrees with the August 31, 1978 draft that maximum size limits be set regionally.

Alternative 5: A number of commenters have asserted that the draft regulations lack the degree of specificity required by NFMA. There is major public conflict regarding the issue of whether or not the regulations should set size limits for harvest openings throughout the National Forest System. Some commenters have strongly criticized the draft regulations for the absence of nationwide standards for size and spacing of harvest openings. Others have emphasized that the regulations should not set national standards but rather these standards should be set by the forest or the region, by species or forest type, and justified, in an environmental impact statement.

Alternative 6: This alternative for the regulations establishes the maximum size for openings created by timber cutting. These maximum sizes are: 80 acres for the Douglas fir forest type of California, Oregon, and Washington; 100 acres of the hemlock-Sitka spruce forest type of coastal Alaska; and 40 acres for all other forest types. There are provisions for exceptions to these size limits. These are:

1. Regional plans may specify smaller maximum sizes for geographic areas or forest types based upon the factors detailed in the revised regulations.

2. Regional plans will include provisions for exceptions that will permit larger size openings than those specified in the regulations. The minimum set of factors to be considered for exceptions is outlined in the revised regulations. Forest plans must conform to the size limitations established by the regional plan. Any exceptions (except catastrophic losses) to exceed the 60-100- or 40-acre maximum size limits must be approved by the Chief, Forest Service. At least 30 days public notice must be given before the size limits may be exceeded.

Alternative 7: This alternative requires that maximum size limit for harvest cut openings will be determined through the regional planning process.

Issue No. 8—Public Participation.

Alternative 1: The August 31, 1978 draft regulations use a theme of criteria to achieve compliance and uniformity. This concept of rulemaking provides latitude for adaptation to future social changes, but does not specifically state standards on the role the public may exercise the decision process. Standards are established for the availability of documents and their required residence. Criteria for the type of meetings to be held and where in the process they are to take place are discretionary in this version of the regulations.

Alternative 2: The proposal does not address this issue.

Alternative 3: The proposal does not address this issue.

Alternative 4: The Committee of Scientists' version of the regulations contain more specific requirements in several areas. The Committee felt that the vague and broad discretion in the August 31, 1978 draft regulations "lead to discontent and an unhappy, uninformed public."

The more specific areas recommended by the Committee of Scientists are:

1. A general policy statement and objectives of public participation.

2. Provide for a mutual program of information and educational exchange.

3. Provide explicitly for public participation at: the beginning of the process, after conclusion of inventories and assessment, and before a preferred alternative is chosen.

4. The responsible official should show evidence that all public input to the plan has been analyzed, evaluated and considered.

5. More specific language on the kind of places to meet such as county courthouses in affected counties.

6. The nature of public participation be made more explicit by:

A. Stressing that informal activities are to be encouraged for information exchange.

B. Stating that notifications shall be made highly visible.

C. Officials responsible shall continue to meet all other obligations for carrying out public participation requirements.

7. The public should be made aware of the kinds of informational materials that will be available. In summary, the Committee of Scientists' version of the regulations on public participation in the planning process proposes more prescriptive rules than the August 31, 1978 draft regulations.

Alternative 5: It was suggested that the regulations should include detailed statements specifying how public participation will be evaluated, summarized and used throughout the planning process. Many felt that the time limits set out for public review and comment upon plans were too short. The question was that the proposed regulations required little coordination with State and local planning agencies. It was suggested that a requirement be added to include public input priorities in national and regional plans, as well as local plans.

Alternative 6: Much of the language and organization recommended by the Committee of Scientists has been adopted in this alternative. As a result, this version is significantly more detailed than the original draft. This revision includes explicit material on the purpose of public participation, required public notices, and the manner in which public input will be used in the planning process. In addition, the public participation responsibilities of the interdisciplinary team have been clarified. One important change has been made to the limitation for public comments. This alternative provides for 90 days for written responses for national and regional planning comments (original draft specified 60 days).

Issue No. 9—Management of Wilderness Areas and Disposition of Roadless Areas.

Alternative 1: The August 31, 1978 draft regulations require that:

1. Lands designated by Congress or the Forest Service as suitable for wilderness will be studied for possible inclusion in the Wilderness System; lands designated to be managed for non-wilderness will not be considered for possible wilderness in the first generation of forest plans.

2. During the 15th-year revision (second generation) of forest plans, other areas will be evaluated for possible wilderness designation.

3. The "appropriateness" of designating the lands under 2 above will be considered.

4. Forest plans must provide direction for management of designated Wilderness and Primitive Areas.

Alternative 2: This issue is not addressed.

Alternative 3: The proposal does not address this issue.

Alternative 4: Committee recommends clarifying language to address two issues: Identifying and appraising additional candidate areas, and establishing maximum allowable levels of use. Key provisions include:

1. Forest plans will include an evaluation of the wilderness resource present and provide management planning for it.

2. All potentially eligible lands should be considered at each revision of the forest plan.

3. Costs and benefits should be considered in the same way as are other resources in considering wilderness status.

4. Criteria for designation should be evaluated continuously as experience dictates; and

5. Determination of "carrying capacity" should be made for each area.

Alternative 5: Several commenters pointed out that the regulations should include more specific considerations of standards and guidelines for management of lands adjacent to designated Wilderness and roadless areas. It was suggested that the regulations be revised to make it clear that the Forest Service would evaluate the wilderness potential for areas not included in the RARE II inventory. It was felt that some regulation guidelines were needed to specify how wilderness potential would be determined. The need for a requirement for detailed economic analysis for trade-offs relating to wilderness designation was also noted. The draft regulations were criticized for the absence of minerals development considerations for roadless areas. Some commenters suggested that it was inappropriate to focus only upon limiting visitor use in Wilderness Areas and that some consideration should be given to use impacts from adjacent areas.

Alternative 6: The proposals recommended by the Committee of Scientists have been adopted in this alternative. In addition, the language of the original draft has been altered in order to clarify the factors to be considered in evaluating wilderness potential and wilderness area management. Minerals development considerations are not addressed specifically in regard to wilderness issues; however, provisions for these concerns are included elsewhere in the revised regulations. Requirements are specified to ensure that levels and kinds of wilderness use are evaluated and considered in wilderness management. Special attention is also required for off-site impacts and adjacent area management.

Issue No. 10—Coordination.

Alternative 1: The August 31, 1978 draft requires coordination with "other affected public entities and Indian tribes." Notice of preparation or revision of forest plans must be given to State agencies, Indian tribes, and heads of county boards affected. Documentation of all consultation is required.

Alternative 2: This issue is not addressed.

Alternative 3: The proposal does not address the issue.

Alternative 4: Committee proposes substitute language to assure that other governmental units understand how they can be involved in Forest Service planning, that the Forest Service make real efforts at coordination, and that Forest Service planners will evaluate and consider the plans of other governmental units as they develop plans. Specifically, recommendations include requirements that:

1. The responsible Forest Service officals be aware of the plans and policies of other units of government;

2. Appropriate State and local government representatives be involved and consulted;

3. A request be made of each State for appointment of a person to coordinate State involvement;

4. The forest plan document that plans, programs and policies of other units of government have been analyzed;

5. Coordination take place at crucial times in the planning process;

6. An attempt to be made to identify goals and plans of owners of intermingled private lands; and

7. That there be coordination within the Forest Service in the designation of special purpose areas.

Alternative 5: Most commenters stated that the regulations lacked specific guidelines and were not sufficient to ensure coordination. There were suggestions indicating the need for closer cooperation between Forest Service activities and State and local governments. Some commenters felt that the regulations should allow for more State or local control over Forest Service activities. It was suggested that the regulations should include provisions for other Federal agencies and State and local government representatives to serve on the interdisciplinary team. It was proposed that coordination with affected private landowners also be required.

Alternative 6: With some minor modifications, the Committee of Scientists' detailed proposals have been adopted.

Issue No. 11—Buffer Strips in Riparian Zones.

Alternative 1: This version of the regulations speaks indirectly to management of the riparian zone under water and soil resources. These regulations direct that existing or potential watershed conditions that will influence soil productivity, water yield, water pollution or hazardous events will be evaluated.

Alternative 2: Not addressed.

Alternative 3: Not addressed.

Alternative 4: This alternative provides prescriptive regulatory language as protection for the riparian zone. It provides for special attention to be given to a strip zone approximately 30 meters wide along both sides of all perennial streams, lakes and other bodies of water. Any activities conducted in this zone would be carried out so as not to result in detrimental change and only carried out if multiple-use benefits exceed costs.

Alternative 5: Many of the commenters stated that the draft regulations did not provide adequate safeguards for water quality and habitat protection. It was suggested that control be established for all activities along lakes and streams. Proposed control measures ranged from prohibiting activities in these areas (various distances were suggested, from 50 feet either side to 600 feet) to a requirement that controls be established in the regional plan. These regional controls would include standards for streamflow, sedimentation, and water temperature. The public comment on the August 31, 1978 draft regulations were in summary, all more concerned with the need for more prescriptive language.

Alternative 6: The treatment of this issue in this alternative is based primarily upon the recommendations of the Committee of Scientists. This alternative proposes that special attention be given to lands and vegetation for approximately 100 feet along both sides of all perennial streams, lakes, and other bodies of water. All management activities which seriously and adversely affect water conditions or fish habitat will be permitted only if conducted so as to protect these waters from detrimental change. Interdisciplinary teams will determine constraints to be placed on management activities in the zone to assure protection of water quality and other multiple-use values.

Alternative 7: This alternative requires that special attention be given to riparian zones (perennial streams, lakes and other bodies of water). The

zone will be identified using criteria established in regional plans.

V. Effects of Implementation

A major effect of the alternative regulations proposed—if adopted—will be to integrate land management planning and functional (resource) planning. Planning of lands and resources of the National Forest System will be conducted by interdisciplinary teams rather than by individual resource or functional staff units.

In many cases the same people and skills will be involved but in a different way. Some additional personnel ceilings will be required because of new skill requirements such as analysts, economists, biologists and writers.

Although resource management planning has always been a major responsiblity in the Forest Service, the emphasis has primarily been on functional planning rather than on integrated resource planning (called multiple-use planning, unit planning, multi-disciplinary planning, etc.). In most instances functional planning remained a separate activity. Functional planning and land management planning often were carried out relatively independently, and budgeting was still along functional lines; the outcome was inevitable: land management planning became in itself a function, much like range management, timber management, and engineering. NFMA requires an integrated plan for each unit of the National Forest System. The planning process prescribed in the alternatives establishes an interdependency of land management and resource planning.

The specific effects of implementing any of the alternative regulation proposals are virtually impossible to quantify. Regulations developed to direct the process of preparation and revision of land management plans have no direct effect on the human environment. The regulations do not commit land or resources. They only establish procedures, and standards and guidelines for planning future commitments. Some general qualified effects or impacts of alternatives are presented below in table form by issues.

Actual effects on the production of goods and services will be determined and verified when the planning is completed. Impacts will be identified in regional or in individual forest plans. These plans are subject to a complete environmental assessment with maximum public participation. Effects generated by the land and resource management alternatives will be analyzed in the environmental impact statement prepared during the actual planning effort.

There are several provisions within each alternative that affect the output of goods and services, particularly timber production. The determination of the allowable sale quantity will directly affect the level of timber available from the National Forests. This is particularly true if departures from non-declining flow are considered and selected. The identification of lands not suited for timber production may reduce the commercial forest land base, particularly where the minumum biological growth potential standard is set above the current minimum of 20 cubic feet per acre per year. Also, establishment of the maximum size of harvest cut opening and riparian zone buffer areas will affect the overall cost of timber production or the total level of supply.

Generally, some outputs will decline temporarily. However, the capacity exists to expand activities with higher level investments so that most outputs could be increased in the long run.

The increased requirements imposed by the NFMA and regulation will increase costs through 1985 or until all plans are developed. This would be primarily due to establishment of the new procedures, requisite training needs, and the variations anticipated between the various National Forests and Grasslands in terms of planning already accomplished or in progress. As the Forest Service becomes more familiar with the new process, the cost should decline. There should be no significant difference between alternatives in long-term costs to the Forest Service as any particular alternative regulation might be promulgated. The integration of all planning efforts into one process should eventually reduce the costs.

Land management planning in the recent past cost about $14 million annually. The anticipated annual costs and additional man years through 1984 are shown in the following table. The table reflects plans as currently scheduled. Costs include planning at all three levels, forest, regional and national

	Number of forest plans	Annual costs	Increased man years	Man years
Fiscal year:				
1979	10	$19,860,000	80	80
1980	30	21,100,000	80	120
1981	30	22,500,000	60	180
1982	30	22,800,000	60	240
1983	30	23,200,000	40	280
1984	20	14,700,000	10	290
1985	all	12,000,000		

These costs reflect an increase for what has been land use or land management planning historically. New skill requirements, the need for additional personnel ceilings, and the uncertainty of the availability of the skills could require more contracting and resultant higher costs. Monitoring requirements may also add significantly to costs.

The effects of implementing alternative regulations on the physical and biological environment are not measurable except qualitatively. Each alternative set of regulations enhances plant and animal diversity, protects soil and water values and the visual resource, and insures long-term productivity. The actual results will be known after the individual forest or regional plans are completed.

The atlernative regulations require that a monitoring and evaluation process be identified and adhered to as a part of plan implementation. This process will: reveal how well the objectives of the forest plan have been met; quantify the effects of management activities upon the physical and biological environment; and develop a data basis for plan updating.

There is no reliable way to estimate quantitatively the effect on the economic environment of promulgating any of the alternative regulations. It is assumed that better management decisions will result from improved economic analysis, because these decisions will be based on cost effectiveness data. Overall management of the NFS should become more cost effective and efficient.

Effects upon the social environment are difficult to quantify. No significant impacts or differences between alternatives are anticipated. The social environment is defined as the composit of social variables likely to be affected

by planning for management of the NFS: Population dynamics, community economy, educational quality, health and environment, housing quality, leisure opportunities, community identity, minorities, and land use and tenure. Specific social effects will be determined and evaluated through the planning process for the appropriate level of planning. Public participation is required throughout the development and revision of all plans, resulting in more public awareness and understanding of National Forest System management. This particular requirement is responsive to the concerns expressed before the NFMA was passed and specifically to Section 6(d) of the Act.

Relative Effects of Alternatives by Issues:

To establish a basis for measuring anticipated implementation effects of each alternative, an independent set of key variables was identified by the interdisciplinary team for each issue. These variables are the factors affected by alternatives. The tables show in relative terms how the alternatives impact the factors listed. Language for Alternative No. 6 and 7 is the same for all issues except 7 and 11. Therefore, impacts for Alternative 7 are shown only for these two issues.

Issue No. 1—The conceptual framework for an integrated planning process. As discussed earlier there are a number of different conceptual frameworks for attempting both vertical and horizontal integration of the planning process. Integration requires a link vertically between the organizational hierarchy of national, regional and local levels, and a merging functionally at the local level the planning of range, wildlife and fish, recreation, timber, water, minerals, and other resources. Therefore, the conceptual method chosen has a significant effect on further options for resolving other issued. For example the incremental approach limits public participation in long-range decisions, while mixed scanning framework tends to enhance this option. (See appendix A)

The practical concerns surrounding this choice relate to such basic items as public participation, the decision process, and agency responsiveness. The alternative choice for how the regulations are to be promulgated under a given conceptual framework may have long reaching effects on how the integrated planning process will be carried out.

Issue No. 1.—*Relative Effect of Alternatives*

Impact of alternative on	Alternative No.					
	1	2	3	4	5	6
Public Perception of Process [1]	2	N/A	N/A	4	4	5
Agency Responsiveness to deal with Issues [2]	L	N/A	N/A	M	H	M+
Planning and Decisionmaking Process [3]	2	N/A	N/A	4	5	4

[1] On a continuum of increasing understanding from 1 to 5, with 5 high.
[2] Response to external stimuli as low, moderate or high.
[3] On a continuum of increasing complexity from 1 to 5, with 5 high.

Issue No. 2—Interdisciplinary Approach. The major debates over regulations on the interdisciplinary teams and approach have focused on technical more than behavioral characteristics. Team composition and leadership have been discussed from differing viewpoints, as well as individual qualifications necessary for legitimate memberships. In addition there has been continuing concern over the role the interdisciplinary team will play in the decisionmaking process. The key effects evaluated for this issue are team formation, duties and qualifications.

Issue No. 2.—*Relative Effect of Alternatives*

Impact of alternative on	Alternative No.					
	1	2	3	4	5	6
Team Formation [1]	1	N/A	N/A	3	4	4
Team Duties [2]	2	N/A	N/A	4	4	4
Team Member Qualifications [3]	1	N/A	N/A	4	3	4

[1] Continuum from (1) discretionary to (5) specific composition.
[2] Continuum from (1) weak to (5) strong direction given.
[3] Continuum from (1) discretionary to (5) specific requirements.

Issue No. 3—Diversity. Diversity is the condition of being different. The classification, measurement and control of the elements which make up diversity of forests and ranges are activities associated with managing renewable resources. It is the proportional distribution of diverse situations, such as different habitats, that determines the availability of timber, wildlife, range production, recreation, streamflow, aesthetics and other benefits. Therefore, diversity determinations have important implications in terms of opportunities for resource planning and management options.

Issue No. 3.—*Relative Effects of Alternatives*

Impacts of alternative on	Alternative No.					
	1	2	3	4	5	6
Genetic variability [1]	No change	N/A	N/A	No change	Increase	Increase
Timber Supply [1]	No change	N/A	N/A	No change	Decrease	No change
Planning Process [2]	2	N/A	N/A	2	3	2

[1] Relative to current situation.
[2] Continuum from (1) to (5) toward increasing complexity.

Issue No. 4—Role of Economic Analysis. Analysis for determination of both efficiency and impact has generated considerable debate. Much of it centers on the "state of the art" and

the possibilities of a given technique being universally practical for nationwide implementation. The nature of economic tests to be made and whether Congress intended that benefits must exceed costs for proposed management practices are the key considerations for measuring effects of alternatives in the issue.

Issue No. 4.—*Relative Effects of Alternatives*

Impact of alternatives on	Alternative No.					
	1	2	3	4	5	6
Planning Process [1]	2	2	2	4	4	3
Nature of Analysis Required [2]	2	4	3	4	5	3
Capability of Forest Service to Implement Direction [3]	4	3	3	2	1	3
Timber Supply [4]	3	1	4	3	2	3

[1] Increasing complexity on a scale of (1) to (5).
[2] Continuum from (1) none specified to (5) specific processes in terms of complexity or rigor.
[3] Low to High on a scale of (1) to (5).
[4] Relative to current situation where 3 is the current situation; below 3 indicates reduced supply, and above 3 indicates an increase.

Issue No. 5—Lands not Suited for Timber Production. The issue in the "lands not suited for timber production" question appears to be a means, not ends, question. There is little disagreement over the desired results that there should be identified in the land management planning process lands not suited for timber production. The debate focuses on where in the process this identification should occur and how prescriptive the analysis screens should be in the regulations.

Issue No. 5.—*Relative Effects of Alternatives*

Impact of alternatives on	Alternative No.					
	1	2	3	4	5	6
Regulated Commerical Timber Base and Supply [1]	No change	Decrease	No change	No change	N/A	No change
Total Commerical Timber Base and Supply [2]	3	5	2	2	N/A	3
Wildlife Habitat Abundance/Diversity [3]	3/3	4/3	2/3	3/3	N/A	3/3
Planning Process [4]	2	5	2	4	N/A	4
Amenities [5]	4	4	3	4	N/A	4

[1] Compared to current situation.
[2] Compared to current situation on a scale of (1) least to (5) most reduction excluding consideration of the role of economics issue.
[3] In terms of increasing abundance and diversity on a scale of (1) to (5), 5 high.
[4] Increasing complexity on a scale of (1) to (5).
[5] In terms of tendency to improve overall quality of water and visual resources, scale (1) to (5), 5 high.

Issue No. 6—Departures. The National Forest Management Act requires as a general policy that the Secretary limit the sale of timber from each National Forest to quantity which can be removed annually in perpetuity on a sustained-yield basis with the discretion to depart from this policy in order to meet overall multiple-use objections. This provision is found in a separate section of the Act (Section 11, or Section 13 of the amended RPA) from the Land Management Planning provisions (Section 6). This separation has caused some interests to believe that the determination of the timber allowable sale quantity should be handled either outside of the land management planning process or as a separate and distinct step after the land management plan has been completed.

Provisions within Section 6 clearly provide that decisions on the level of timber harvest be made within the integrated land management planning process.

Issue No. 6.—*Relative Effects of Alternatives*

Impacts on alternatives on	Alternative No.					
	1	2	3	4	5	6
Planning Process [1]	2	5	2	3	N/A	3
Opportunity to change Short Term Timber Supply [2]	4	1	5	3	N/A	3

[1] On a scale of (1) low to (5) high toward increasing difficulty to implement the process.
[2] On a scale of (1) to (5) toward increasing agency flexibility to make determinations.

Issue No. 7—Size of Openings. At debate is the issue of the size of harvest cut opening to be allowed within a given silvicultural system. Should size standards be stated prescriptively or should size be determined through the planning process on a regional or site specific basis?

Issue No. 7.—*Relative Effects of Alternatives*

Impacts of alternatives on	Alternative No.						
	1	2	3	4	5	6	7
Discretion to Manipulate Vegetation including Wildlife Habitat [1]	4	N/A	N/A	4	2	3	4
Per Acre Harvest Costs [2]	No change	N/A	N/A	No change	Increase	Increase	No change
Water Quality [3]	2	N/A	N/A	2	4	3	2
Timber Supply [4]	No change	N/A	N/A	No change	Decrease	Decrease	No change

[1] In terms of improving habitat quality, scale of (1) to (5), 5 high.
[2] Relative to current situation.
[3] On a scale of (1) to (5) toward increasing sedimentation.
[4] Relative to current situation. Increase harvest costs means some marginal sales become unavailable, thus reducing harvests in some areas.

Issue No. 8—Public Participation. Public participation in Forest Service decisionmaking has been an issue of considerable experimentation and debate since the passage of the National Environmental Policy Act in 1969. Central to the issue is the openness that shall be maintained by the agency so that the public may become informed about National Forest matters and, if sufficiently interested, to participate through various forums in the development, review and revision of land management plans.

Issue No. 8.—*Relative Effects of Alternatives*

Impacts of alternatives on	Alternative No.					
	1	2	3	4	5	6
Planning Process [1]	2	N/A	N/A	4	4	4
Public's Awareness and Understanding [2]	2	N/A	N/A	4	4	5

[1] Increasing complexity on a scale of (1) to (5).
[2] Increasing improvement on a scale of (1) to (5).

Issued No. 9—Management of Wilderness Areas and Disposition of Roadless Areas. How often and to what extent shall wilderness values be considered? At issue is the question of whether undeveloped areas should be considered for wilderness during each major plan revision if they are still in an essentially natural state, and should maximum levels of use be deferred through regulations?

Issue No. 9.—*Relative Effects of Alternatives*

Impacts of alternatives on	Alternative No.					
	1	2	3	4	5	6
Disposition of RARE II Areas [1]	No	N/A	N/A	Yes	Yes	No
Use of Areas [2]	2	N/A	N/A	4	5	4

[1] To consider in land and resource management plan before 1985.
[2] Process for determining potentials of areas and limitations to be placed on them is from (1) discretionary and unspecified to (5) required and specific.

Issue No. 10—Coordination. At issue is the amount and level of coordination that should be required during land and resource management planning between the Forest Service and other planning entities. Whether prescriptive requirements or process direction for achieving desired end results is the matter to be evaluated.

Issue No. 10.—*Relative Effects of Alternatives*

Impact of alternative on	Alternative No.					
	1	2	3	4	5	6
Planning Process [1]	2	N/A	N/A	4	5	3
Levels of Awareness and [2]	2	N/A	N/A	4	5	3

[1] Increasing complexity on a scale of (1) to (5).
[2] Increasing improvement on a scale of (1) to (5).

Issue No. 11—Buffer Strips in Riparian Zones. The riparian ecosystem represents one of the richest areas in terms of flora and fauna within the Forest System. The scientific community is divided on whether this ecosystem is fragile or resilient. There are many demands in this zone; for aesthetics, water quality considerations, recreation opportunities, road construction opportunities, wood, forage and wildlife opportunities. It's also a nice place to eat your lunch.

Conflicting demands for uses in these areas are escalated in the more arid parts of the West where this ecosystem is more scarce. The principal issue is the degree to which the regulations prescribe the protection standards for riparian areas.

Issue No. 11.—*Relative Effects of Alternatives*

Impacts of alternative on	Alternative No.						
	1	2	3	4	5	6	7
Planning Process [1]	1	N/A	N/A	5	3	5	4
Per Acre Harvest Costs [2]	No change	N/A	N/A	Increase	Increase	Increase	No change
Amenity Values [3]	No change	N/A	N/A	Increase	Increase	Increase	No change
Timber Supply [4]	1	N/A	N/A	2	3	2	1

[1] Increasing complexity on a scale of (1) to (5).
[2] Relative to current situation.
[3] Water and scenic quality.
[4] Relative to current situation on a scale of (0) no reduction to (3) most reduction.

VI. Evaluation of the Alternatives

Various approaches for planning, numerous definitions of terms, and a variety of alternative descriptions and language for management standards and guidelines were analyzed and evaluated almost continuously throughout the development of the proposed regulations. The following is an evaluation of how the alternative sets of regulations meet the evaluation criteria described in Section III.

Between Alternative Evaluation

Selection Criteria [1]	Alternative No.						
	1	2	3	4	5	6	7
Effectiveness of Meeting Congressional Intent on NFMA	3	2	[illegible]	[illegible]	[illegible]	4	[illegible]
Basis in Technical and Scientific Principle	[illegible]	2	3	5	[illegible]	[illegible]	5
Acceptable to Public	1	2	[illegible]	[illegible]	N/A	5	[illegible]
Environmental Protection Adequacy	2	[illegible]	2	[illegible]	[illegible]	5	4
Timber Supply	[illegible]	1	[illegible]	[illegible]	1	[illegible]	4
Conformity with Executive Order #12044 Concerning Regulations Simplicity-Clarity/ Economic Burden [2]	3/2	3/5	3/2	2/3	N/A	5/3	5/2
Establishing Accountability	[illegible]	[illegible]	2	[illegible]	[illegible]	4	[illegible]
Capability to Implement	5	[illegible]	5	3	3	[illegible]	[illegible]
Flexibility Provided	[illegible]	2	5	[illegible]	2	[illegible]	4

[1] Ratings are on a scale of (1) low to (5) high in terms of how the alternative regulation sets meet the criteria listed. See Section III for a full description of each criteria.

[2] Higher number indicates greater burden.

Rationale for Rating Alternatives and for the Selection of the Preferred Alternative:

The alternative planning processes and language sets described to address the central issues have been analyzed and evaluated in this statement. The NFMA established bounds within which to develop the regulations. It required that a Committee of Scientists assist in the development of guidelines and procedures. By utilizing this prescribed method, including provisions for public participation, the range of alternatives for consideration narrowed to the preferred alternative proposed for adoption. This set of regulations will be published in the **Federal Register** for further public comment before final adoption. It also appears with the other alternatives in the Appendix of this DEIS.

Meeting Congressional Intent on NFMA:

NFMA presents congressional policy concerning the balance between protection of the environment and the need to provide adequate supplies of wood products. With this policy direction, Congress endorsed the concept that silvicultural prescription should be determined by the professional resource manager, not the legislator. Congress expects, however, that the regulations called for in NFMA will provide better controls on management planning and decisionmaking and that these controls will be influenced by interdisciplinary planning, and substantial public participation throughout the planning process.

The August 31, 1978 draft regulations met the intent of NFMA, but provided more discretion in the selection and use of guidelines and standards governing management activities. The revised draft (the preferred alternative) represents a sensible compromise between discretionary management and management by inflexible rules. The alternative retains the option for more explicit management controls and direction if future management under the proposed regulations fails to meet congressional expectations.

Basis in Technical and Scientific Principles:

There are substantial differences of opinion on many of the issues for which direction is provided in the alternative regulations. Congress, recognizing these differences, directed the Secretary to appoint a Committee of Scientists for advice in the preparation of these regulations. The interdisciplinary team that prepared this statement believes that the Committee of Scientists' version of the regulations represents the state of the art in technical and scientific areas. In most instances, alternatives 6 and 7 are based upon the Committee's technical and scientific recommendations. The August 31, 1978 draft, and the Environmental and Timber groups' proposals do not contain the same level of prescribed precision as the aforementioned two versions because they dealt only with two specific issues. There was wide variation in the public comments. Issues raised by the public were also reviewed by the Committee of Scientists.

It is possible, as the state-of-the-art evolves in such areas as resource valuation, diversity measurements, etc., that direction will have to be modified to accommodate new techniques and approaches.

Acceptability to the Public:

In evaluating public reaction to alternative regulations, more than 5,300 separate comments, as well as the texts of specific proposals from the general public and Environmental and Timber groups, were reviewed. In addition, the Committee of Scientists proposals were examined in depth. All of the above information was used in alternative evaluation. While none of the alternative regulation sets will be acceptable to all interested groups, the interdisciplinary team concludes that the Preferred Alternative incorporates the most acceptable version to all publics. This is because this version expresses the most acceptable regulation in that it describes in more specific language the actions to be taken by the Forest Service during the land management planning process. This factors, coupled with the degree of environmental protection, weighed heavily in selecting Alternative 6 as the Preferred Alternative.

Adequacy of Protection Afforded the Environment:

Public concern about environmental protection helped secure passage of the National Forest Management Act. The alternatives considered ranged from considerable flexibility at the national forest level in the August 31, 1978 version, to a more detailed approach to environmental protection proposed by the Committee of Scientists. Some of the key elements between alternatives were size of openings, riparian zone protection, determination of lands not suited for timber management, diversity, public participation, coordination with other planning units and interdisciplinary teams.

The August 31, 1978 regulations provided considerable discretion in riparian zone protection, and provisions for diversity, but so do the revised regulations. The detail and clarity of requirements mandated in the Preferred Alternative should, however, result in more complete, balanced consideration for environmental protection during the land management planning process.

Timber Supply.

Many of the provisions of NFMA directly affect timber supply, while others such as diversity and buffers have an indirect affect though the cost of producing and/or harvesting timber. It is difficult to separate other events and factors affecting timber supply from these regulations.

The NFMA provisions and the implementing regulations were also influenced by other laws such as the Endangered Species Act or events such as RARE II.

Some issues assessed affect timber supply in different ways. Several issues such as lands not suited affect the land base available. Others, the size of opening for example, affects the cost of harvesting timber, because marginal timber from smaller areas may be excluded from harvesting. Thus, the supply could be reduced, incurring higher costs.

The August 31, 1978 version provided more discretion to the land manager in selecting and using guidelines and criteria that affect timber supply. Four of the other alternatives reduce that discretion and are expected to reduce supply to varying degrees or increase the costs of maintaining or increasing supply. In balance with the other criteria, while a greater supply of timber would be available under the timber industry alternative, overall RPA objectives including an increased supply of timber through more intensive management from the national forests can be achieved with the Preferred Alternative.

Comformity with Executive Order No. 12044:

Executive Order No. 12044 directs that regulations prepared be as simple and as clear as possible. An evaluation of alternative language sets for regulations display a considerable range from simple to complex descriptions of direction and intent. The August 31, 1978 version of the regulations reflects a rather informal process-oriented approach while other versions, such as the Committee of Scientists and the Preferred Alternative are more explicit.

While the President's Executive Order prescribes simplicity and a reduction in implementation and economic burdens, it also requires the agency to be responsive to public comment. Public comment on the original draft regulations addressed the need to provide more specific and prescriptive language. The dichotomy of this evaluation results in ranking two different regulation language sets high for different reasons, i.e., the draft regulations, because of their simple language, and the Preferred Alternative because of their response to public comments. The interdisciplinary team carrying out this evaluation felt that the need to respond to public comment was an important factor to be considered. Nevertheless all alternatives tend to be slightly inflationary because of their overall tendency to increase costs to manage the National Forest System as well as to slightly reduce the supply of timber.

Accountability:

The regulations must clearly state who is responsible for certain actions, the nature and extent of responsibilities delegated, and clearly describe the appeal mechanisms in terms of substance and procedures.

Relative to the other alternatives, the August 31, 1978 draft regulations are considered to be weak in this respect. The principal reasons for this low ranking are:

1. August 31, 1978 draft implies that a great many decisions will be made during the regional planning process, but does not specify what the regional plan is, or how it will be done, or who is responsible for it.

2. Draft does not clearly define the role and responsibility of the interdisciplinary team.

3. With the exception of the regional planning shortcoming, the appeal procedures are adequate.

The Environmental Groups' proposal addresses accountability in the departures issue. Both the Chief and Secretary are identified as responsible for approving departures. There is, therefore, a high degree of accountability for this issue. The Timber Groups' alternative does not alter the draft with respect to this point. The Committee of Scientists' proposals add specifications and requirements for regional planning, interdisciplinary approach and clarifying details to the appeals process. This alternative is considered to possess a higher degree of accountability than does the August 31, 1978 draft or the Timber Groups' proposals. The public comments stressed the need for more details on regional planning and the interdisciplinary approach. Suggested revisions were similar to those of the Committee of Scientists' alternative. The Preferred Alternative has incorporated the concerns voiced by the Committee of Scientists and the public comments.

Capability to Implement:

The evaluation of feasibility is related to personnel and skill requirements, and the time required to undertake and complete planning actions specified. Neither the August 31, 1978 draft regulations nor the Timber Groups' proposal would significantly affect either of these factors. The Environmental Groups' alternative would require more detailed economic evaluation for lands not suitable for timber harvest, and a more detailed, time consuming procedure for departures. The Environmental Groups' alternative is, therefore, considered to be somewhat more demanding than the August 31, 1978 draft and Timber Groups' proposal. The Committee of Scientists alternative is extremely demanding as a result of suggested revisions to the interdisciplinary team approach, economic analysis requirements, diversity provisions, public participation requirements, coordination, and required riparian buffer zones. Public comments indicate the need for more expanded interdisciplinary teams, greater public participation and coordination, more detailed economic analysis, and longer time limits for public review of plans. The public comments can be considered somewhat less demanding than the Committee of Scientists' alternative, but more demanding than the August 31, 1978 draft or Environmental or Timber Groups' proposals. Since the Preferred Alternative largely reflects the Committee of Scientists' proposals, the feasibility of this alternative is considered to be the same as for the Committee of Scientists' alternative.

Flexibility:

Flexibility is related to the degree to which regulations permit site-specific management discretion and allowance for exceptional circumstances. Both the August 31, 1978 draft and the Timber Groups' alternatives are considered to be highly flexible, especially with regard to openings created by cutting, biological growth minimums for timber, and protection standards for streams and lakes. The Environmental Groups' alternative is highly inflexible with regard to minimum biological growth stands. The Committee of Scientists proposal would result in somewhat less flexibility than the draft, primarily as a result of the riparian buffer zone requirements. The Committee's proposals to determine size opening standards at the regional level are identical to those of the August 31, 1978 draft. Many public comments were directed toward site specific concerns and were, therefore, highly inflexible when considered from the viewpoint of national regulations. The revised regulations are based primarily upon the revisions suggested by the Committee of Scientists and the concerns voiced throughout the public comments. While the revised regulations do not include a

national biological growth minimum for timber harvest, they do include a number of detailed standards including maximum size for openings created by cutting; riparian buffer zone; more detailed requirements for coordination, public participation, diversity and forest type conversions; wilderness management and roadless area evaluation. As a result of these requirements, the Preferred Alternative provides compromise flexibility.

VII. Consultation with Others

Opportunities for public involvement in the development of the regulations have been made available beginning with the enactment of the NFMA in 1976. The Work Plan Outline was made available on March 5, 1977. It identified the tasks to be completed in the development of the regulation including the opportunity for public participation in the effort.

A Committee of Scientists (see Appendix H) was appointed by the Secretary of Agriculture in response to Section 6(h) of the Act, which charged the Committee to "provide scientific and technical advice and counsel on proposed guidelines and procedures to assure that an effective interdisciplinary approach is proposed and adopted." However, the Secretary broadened this charter to include advice and counsel on all parts of Section 6 of the Act. The Committee met many times in various locations (see Appendix G). Its work was conducted in two phases. The first was to work with Forest Service personnel to consider and prepare language for the regulations. This phase terminated upon publication of the draft regulations which appeared in the August 31, 1978 Federal Register. The second phase of the Committee's work was to evaluate the draft regulations and to prepare a report to the Secretary. This phase was completed when the Committee submitted its report to the Secretary on February 22, 1979. This report, together with the Committee's proposed regulations, is the basis for the Committee of Scientists' alternative discussed in the DEIS.

The public, (State, local officials, interest group representatives and others) was given the opportunity to attend the Committee of Scientists meetings and frequently participated in the discussions. The complete minutes of all these meetings are available for review in the Forest Service Headquarters, Land Management Planning, Room 4021, South Agriculture Building, 12th and Independence Ave. SW, Washington, D.C., and in the Library of Congress, and in Forest Service Regional Office headquarters.

The public was also given the opportunity to attend other meetings convened especially to obtain comments on the August 31, 1978 draft regulations. The proceedings of those meetings were published and are also available for review at Forest Service headquarters.

The Forest Service received 737 letters containing 5,373 identifiable comments concerning the August 31, 1978 draft regulations. These letters and comments are available for review along with the report and its summary of the analysis of this public comment. These comments, the suggestions received through meetings open to the public, the work of the Committee of Scientists, and the technical reports prepared by the Forest Service staff, form the basis of the alternatives discussed in this statement, and all influenced the development of the revised draft regulations, and the preferred alternative. The public will have an additional opportunity to review and comment on this draft environmental statement before the proposed regulations are finalized. Comments must be received within 60 days after the draft environmental statement is published.

Appendix

A. Summary of Theories, Concepts, and Approaches to Planning

B. Forest Service Draft Regulations, Federal Register, Vol. 43, No. 170, August 31, 1978

C. Environmental Groups' Proposals for Section 219.10(d), Federal Register, August 31, 1978

D. Timber Groups' Proposals for section 219.10(d), Federal Register, August 31, 1978

E. Committee of Scientists' Recommended Regulations, February 22, 1979, attachment to Committee's Report to the Secretary of Agriculture

F. Forest Service Revised Draft Regulations, the Preferred Alternative Recommended for Adoption

G. Dates and Locations of Committee of Scientists' Meetings, and other Public Meetings.

H. Names and Affiliations of the Committee of Scientists Appointed by the Secretary of Agriculture, pursuant to Section 6(h) of the National Forest Management Act.

I. Text of Forest and Rangeland Renewable Resources Planning Act of 1974, as amended by the National Forest Management Act of 1976.

Note.—Only Appendix material F, G, and H is included with this DEIS as published in this issue of the Federal Register. Item E follows the regulations as published herein.

Appendix A

Planning Process or System Alternatives which were considered are described below. For a more complete discussion, the reader is referred to the minutes of the May 24–26, 1977 Committee of Scientists' meeting.

1. Incrementalism: Policy of decisionmaking as variations on the past. The land manager views public policy and decisionmaking as a continuation of the past government activities with only incremental modifications. This process is based on the successive comparison of a limited array of policies or decision alternatives.

2. Rationalism: Policy or decisionmaking as efficient goal achievement. A rational policy or decision is one that is correctly designed to maximize or minimize net value achievement. Policy and decisionmaking is approached through means-ends analysis. First, the desired ends are determined, then the alternative means to achieve them are designed.

3. Mixed Scanning: Policy and decisionmaking as variations on the past in line with modified efficient goal achievement. This process is a mixture of Incrementalism and Rationalism. It attempts to limit the details and explores longer run alternatives.

4. System Theory: Policy and decisions as rational system output. This theory is an extension of the scientific method. The problem is defined, objectives set, alternatives developed and evaluated, and a decision made as to the preferred course of action. A mechanism of monitoring and updating is needed.

5. Group Theory: Policy and decisionmaking as a group equilibrium. This is based on the belief that interaction among groups is the central fact of political decisionmaking. Groups struggle: Policy and decisions result when equilibrium between groups is reached.

6. Game Theory: Policy as rational choice in competitive situations. This is the making of rational decisions in situations where participants have choices to make and the outcome depends on the choices made by each of them. There is no independently best choice. This theory provides a way of thinking clearly about policy or decision choices in conflict situations.

7. Institutionalism Theory: Policy and decisionmaking as inherent institutional

activity. The activities of individuals and groups are generally directed toward governmental institutions. Public policy and decisions are authoritatively determined, implemented, and enforced by governmental institutions.

8. Elite Theory: Policy or decision as the preference of an elite. Elites shape mass opinion on policy or decision questions more than do the masses because the latter are apathetic and ill-informed. In other words, policies flow from elites to the masses: they do not arise from the masses.

9. Anti-Planning: Policy and decisionmaking as output of an individual decisionmaker. This is a common form of planning. A system or problem exists which needs to be managed. The manager studies aspects of the problem he deems important, utilizes data from staff, and decides what to do.

Major problems outside the planning realm itself greatly constrain the type of planning procedure which can be used. Two concepts of considerable importance are "paradigm" and "people". A "paradigm" is a set of conceptual constructs which govern the viewpoints of people involved in a planning process. The people are referred to as "hierarchists," "individualists," and "mutualists," who use different paradigms, respectively "one way causal," "random process," and "mutual causal." These notions were also considered and used as part of the conceptual basis for designing the planning process.

Appendix G

Committee of Scientists and other Meeting Dates and Locations:

May 24–26, 1977—Washington, D.C.
June 19–21, 1977—Boise, Idaho
July 27–28, 1977—Juneau, Alaska
August 29–30, 1977—Denver, Colorado
September 21–23, 1977—Minneapolis, Minnesota
October 27–18, 1977—San Francisco, California
December 1–2, 1977—Atlanta, Georgia
January 16–18, 1978—Phoenix, Arizona
February 23–24, 1978—Biloxi, Mississippi
March 29–30, 1978—Dallas, Texas
April 17–18, 1978—Washington, D.C.
July 14, 1978—Washington, D.C.
September 28–29, 1978—Denver, Colorado
November 1–2, 1978—Seattle, Washington
December 7–8, 1978—Sacramento, California
January 8–9, 1979—Houston, Texas
January 26, 1979—Washington, D.C.

Public Meetings on the National Forest Management Act Regulations:

September 15, 1978—Washington, D.C.
November 27, 1978—Washington, D.C.

Appendix H

Members of the Committee of Scientists appointed by the Secretary of Agriculture, pursuant to Section 6(h) of NFMA:

Dr. Arthur W. Cooper, Committee Chairman, Botanist and Professor, School of Natural Resources, North Carolina State University, Raleigh, North Carolina.
Dr. Thadis W. Box, Dean, College of Natural Resources and Professor of Range Science, Utah State University, Logan, Utah.
Dr. R. Rodney Foil, Mississippi Agricultural and Forestry Experiment Station, Mississippi State, Mississippi, and specialist in forest resource management.
Dr. Ronald W. Stark, Forest Entomologist and Coordinator of Research, University of Idaho, Moscow, Idaho.
Dr. Earl L. Stone, Jr., Soil Scientist and Professor, Department of Agronomy, Cornell University, Ithaca, New York.
Dr. Dennis E. Teeguarden, Professor of Forestry Economics, College of Natural Resources, University of California, Berkeley, California, and specialist in applying operations research to forest resource allocation problems.
Dr. William Webb, Wildlife Biologist, formerly Professor in Wildlife Management, State University of New York, Syracuse, New York, now retired.

It is proposed to amend 36 CFR by adding a new Part 219, Consisting of Subpart A to read as follows:

PART 219—PLANNING

Subpart A—National Forest System Land and Resource Management Planning

Sec.
219.1 Purpose.
219.2 Scope and Applicability
219.3 Definitions.
219.4 Planning Levels.
219.5 Planning Process.
219.6 Interdisciplinary Approach.
219.7 Public Participation.
219.8 Coordination of Public Planning Efforts.
219.9 Regional Planning Procedure.
219.10 Criteria for Regional Planning Actions.
219.11 Forest Planning Procedure.
219.12 Criteria for Forest Planning Actions.
219.13 Management Standards and Guidelines.
219.14 Research.
219.15 Revision of Regulations.
219.16 Transition Period.

Authority.—Sec. 6 and 15, 90 Stat. 2949, 2952, 2958 (16 U.S.C. 1604, 1613); and 5 U.S.C. 301.

Subpart A—National Forest System Land and Resource Management Planning

§ 219.1 Purpose.

(a) The regulations in this subpart set forth a process for developing, adopting, and revising land and resource management plans for the National Forest System. The purpose of the planning process is to meet the requirements of the Forest and Rangeland Renewable Resources Planning Act of 1974, as amended, (hereafter RPA) including procedures established by the National Environmental Policy Act of 1969 (hereafter NEPA) for assessing environmental impacts. These regulations prescribe how land and resource management planning shall be conducted on National Forest System lands. The resulting plans will provide for multiple use and sustained yield of products and services from the National Forest System.

(b) Plans guide all natural resource management activities and establish management standards and guidelines for the National Forest System. They determine resource management practices, harvesting levels and procedures under the principles of multiple use and sustained yield and the availability and suitability of lands for resource management. All levels of planning will be based on the following principles:

(1) Consideration of the relative values of all renewable resources;

(2) Establishment of goals and objectives for the sustained yield of products and services resulting from multiple-use management without impairment of the productivity of the land;

(3) Protection and, where appropriate, improvement of the quality of renewable resources;

(4) Preservation of important historic, cultural and natural aspects of our national heritage;

(5) Provision for the safe use and enjoyment of the forest resources by the public;

(6) Protection of all forest and rangeland resources from depredations by the forest pests, using ecologically compatible means;

(7) Coordination with the land and resource planning efforts of other Federal agencies, State and local governments, Indian tribes, and adjacent private landowners;

(8) A systematic, interdisciplinary approach to ensure coordination and integration of planning activities for multiple-use management;

(9) Early and frequent public participation;

(10) Establishment of quantitative and qualitative standards and guidelines for land and resource planning and management;

(11) Management of National Forest System lands in a manner that is sensitive to economic efficiency; and

(12) Responsiveness to changing conditions in the land and preferences of the American people.

§ 219.2 Scope and applicability.

These regulations apply to all lands in the National Forest System. Planning requirements for managing special areas, such as wilderness, wild and scenic rivers, national recreation areas, and national trails, shall be included in land and resource management planning pursuant to these regulations. Whenever the special area authorities require additional planning, those authorities shall control in implementing the planning process under these regulations.

§ 219.3 Definitions.

For purposes of this subpart the following words shall have these meanings:

(a) "Allowable sale quantity": The quantity of timber that may be sold from the area of land covered by the forest plan for a time period specified by the plan. This quantity is usually expressed on an annual basis as the average annual allowable sale quantity.

(b) "Assessment": The Renewable Resource Assessment required by the RPA.

(c) "Capability": A measure of the potential of a unit of land to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices and at a given level of management intensity. Capability depends upon current conditions and site conditions such as climate, slope, landform, soils and geology, as well as the application of management practices, such as silviculture or protection from fire, insects, and disease.

(d) "Corridor": A linear strip of land which has ecological, technical, economic, social, or similar advantages over other areas for the present or future location of transportation or utility rights-of-way within its boundaries.

(e) "Diversity": The number of different plant an animal species and each species' abundance, and the distribution and abundance of different natural plant and animal communities within the area covered by a land and resource management plan.

(f) "Economic efficiency analysis": A comparison of the values of resource inputs (costs) required for a possible course of action with the values of resource outputs (benefits) resulting from such action. In this analysis, incremental market and nonmarket benefits are compared with investment and physical resource inputs.

(g) "Environmental assessment": An analysis of alternative actions and their predictable short- and long-term environmental effects, which include physical, biological, economic and social factors and their interactions. It also means the concise public document required by the regulations for implementing the procedural requirements of NEPA, (40 CFR 1508.9).

(h) "Environmental documents": A set of concise documents meeting the requirements of the regulations meeting the procedural provisions of NEPA, (40 CFR 1508.10).

(i) "Even-aged silviculture": The combination of actions that results in the creation of stands in which trees of essentially the same age grow together. Managed even-aged forests are characterized by a distribution of stands of varying ages (and therefore tree sizes) throughout the forest area. Regeneration in a particular stand is obtained during a short period at or near the time that the stand has reached the desired age or size and is harvested. Clearcutting, shelterwood cutting, seed tree cutting, and their many variations are the cutting methods used to harvest the existing stand and regenerate a new one. In even-aged stands, thinnings, weedings, cleanings, and other cultural treatments between regeneration cuts are often beneficial. Cutting is normally regulated by scheduling the area of harvest cutting to provide for a forest that contains stands having a planned distribution of age classes.

(j) "Goal": A concise statement of the state or condition that a land and resource management plan is designed to achieve. A goal is usually not quantifiable and may not have a specific date for completion.

(k) "Guidelines": An indication or outline of policy or conduct.

(l) "Integrated pest management": A process in which all aspects of a pest-host system are studied and weighed to provide the resource manager with information for decisionmaking. Integrated pest management is, therefore, a part of forest or resource management. The information provided includes the impact of the unregulated pest population on various resources values, alternative regulatory tactics and strategies, and benefit/cost estimates for these alternative strategies. Regulatory strategies are based on sound silvicultural practices and ecology of the pest-host system. Strategies consist of a combination of tactics such as stand improvement plus selected use of pesticides. The overriding principle in the choice of strategy is that it is ecologically compatible or acceptable.

(m) "Long-term sustained yield capacity": The highest uniform wood yield from lands being managed for timber production that may be sustained under a specified intensity of management consistent with multiple-use objectives.

(n) "Management concern": An issue or problem requiring resolution, or condition constraining management practices identified by the interdisciplinary team.

(o) "Management direction": A statement of goals and objectives and management practices for attaining them.

(p) "Management intensity": The relative cost of a possible management direction and/or management practice.

(p) "Management practice": A specific action, measure, or treatment applied to a planning area or part thereof.

(r) "Multiple use": "The management of all the various renewable surface resources of the national forests so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some lands will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairmant of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output." (16 U.S.C. 531(a))

(s) "Objective": A specific statement of measurable results to be achieved within a stated time period. Objectives reflect alternative mixes of all outputs or achievements which can be attained at a given budget level. Objectives may be expressed as a range of outputs.

(t) "Policy": A guiding principle upon which is based a specific decision or set of decisions.

(u) "Program": The Renewable Resource Program required by the RPA.

(v) "Public issue": A subject or question of widespread public interest relating to management of National Forest System lands identified through public participation.

(w) "Public participation activities": Meetings, conferences, seminars, workshops, tours, written comments, response to survey questionnaires, and

similar activities designed and held to obtain comments from the general public and specific publics about National Forest System land management planning.

(x) "Real dollar value": A value from which the effect of change in the purchasing power of the dollar has been removed.

(y) "Responsible Forest Service official": The individual who has been delegated the authority to carry out a specific action.

(z) "Silvicultural system": A combination of interrelated actions whereby forests are tended, harvested, and replaced. The combination of management practices used to manipulate the vegetation results in forests of distinctive form and character, and this determines the combination of multiple resource benefits that can be obtained. Systems are classified as even-aged and uneven-aged.

(aa) "Standards": A principle requiring a specific level of attainment.

(bb) "Suitability": The appropriateness of applying certain resource management practices to a particular unit of land, as determined by an analysis of the economic and evironmental consequences and the alternative uses foregone. A unit of land may be suitable for a variety of individual or combined management practices.

(cc) "Sustained-yield of the several products and services": "The achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the national forest without impairment of the productivity of the land." (16 U.S.C. 531(b))

(dd) "Timber harvest schedule": The quantity of timber planned for sale and harvest, by time period, from the area of land covered by the forest plan. The first period, usually a decade, of the selected harvest schedule provides the allowable sale quantity. Future periods are shown to establish that sustained yield will be achieved and maintained.

(ee) "Timber production": The growing, tending, harvesting and regeneration of regulated crops of industrial wood. Industrial wood includes logs, bolts or other round sections cut from trees for industrial or consumer use, except fuelwood.

(ff) "Uneven-aged silviculture": The combination of actions that result in the creation of forests in which trees of several or many ages may grow together. Managed uneven-aged forests may take several forms depending upon the particular cutting methods used. In some cases, the forest is essentially similar throughout, with individual trees of many ages and sizes growing in close association. In other cases, small groups of trees of similar age may be intermingled with similar groups of different ages; although the groups are even aged, they are not recorded separately. Finally, an uneven-aged forest may contain two or three distinct age classes on the same area, creating a storied forest. Under uneven-aged silviculture, regeneration is obtained several or many times during the period required to grow an individual tree ot maturity. Single-tree selection cutting, group selection cutting, and other forms of partial cutting are used to harvest trees, obtain regeneration, and provide appropriate intermediate culture. Cutting is usually regulated by specifying the number or proportion of trees of particular sizes to retain within each area, thereby maintaining a planned distribution of size classes. Scheduling by area harvest is often used as well.

§ 219.4 Planning levels.

(a) The planning process requires a continuous flow of information and management direction among the three Forest Service administrative levels: national, regional, and designated forest planning area. Management direction shall: be based principally upon locally derived information about production capabilities; reflect conditions and circumstances observed at all levels; and become increasingly specific as one moves from the national to regional level, and from the regional to designated forest planning area. In this structure, regional planning is the principal device for conveying management direction from the national level to designated forest planning areas and for conveying information from such areas to the national level.

(b) Planning levals and relationships are set forth in paragraphs (b)(1) through (3) of this section

(1) *National.* The Chief, Forest Service, shall develop the Assessment which will analyze the present and future demands for and supplies of the Nation's forest and rangeland renewable resources. Where possible,demands shall be assessed over a range of prices. The Chief shall also analyze opportunities to improve or extend the uses of the Nation's forest and rangeland renewable resources. The assessment of supply will indicate the feasible range of alternative mixes of outputs which may be forthcoming at each of various reasonable cost levels. This estimate will be based on the capabilities for each planning area. Through the planning process described in § 219.5 and based on the Assessment, the Chief shall develop a recommended Program. In formulating this Program, the costs of supply and the relative values of both market and non-market outputs will be considered. The Program shall include national renewable resource goals and quantified objectives based upon various budget location priorities and under various reasonable and estimated total budget levels. A protion of each national goal and objective, expressed as a range of outputs, shall be assigned to each region and shall be incorporated into each regional plan. The objectives assigned to each region will be based on local supply capabilities and market conditions. Economic efficiency and potential environmental effects will be considered in these assignments.

(2) *Regional.* Each regional forester shall develop a regional plan in accordance with the procedures, standards, and guidelines specified in this subpart. The required planning process is established in § 219.5. Procedural requirements for regional plans are established in §§ 219.9 and 219.10, and resource management standards and guidelines are set forth in § 219.13. The regional planning process will respond to and incorporate the program direction established by the Chief, Forest Service, under paragraph (b)(1) of this section. Regional objectives shall be assgned to designated forest planning areas. These assignments will be based upon: supply capabilities, socio-economic assessments, potential environmental effects, economic efficiency criteria, community stability objectives, and resource management standards and guidelines which have been established by the planning process. The regional forester may request adjustment of assigned regional objectives prior to their incorporation into the plan. Any adjustment will require the approval of the Chief, Forest Service.

(3) *Forest.* Forest plans shall be developed for all lands in the National Forest System in accordance with the procedures, standards, and guidelines specified in this subpart. The planning process is established in § 219.5, and procedures are set forth in § 219.11. Resource management standards and guidelines are established in § 219.13. One forest plan ma be prepared for all lands for which a forest supervisor has responsibility, or separate forest plans may be prepared for each national forest, or combination of national forests, within the jurisdiction of a single

forest supervisor. These forest plans will constitute the land and resource management plans developed in accordance with section 6 of the RPA and will include all resources management planning. Forest plans will address the goals and objectives established by the regional plan. The objectives assigned to each forest will be evaluated in order to assure that they are compatible with local supply and demand, economic efficiency, community stability, and potential environmental effects. Based upon this evaluation, the forest supervisor may request adjustment of assigned objectives prior to their incorporation into the forest plan. Any such adjustment will require the approval of the regional forester.

(c) The transfer of information among planning levels is particularly important for the process actions in paragraphs (c)(1) through (4) of this section. Process actions are further described in § 219.5.

(1) *Public issues and management concerns.* The Assessment is dependent upon the identification of issues and concerns which are national in scope and significance. Information on these national issues and concerns, along with issues and concerns which are regional or local in nature, should be maintained at the regional or forest level and provided to the Assessment. Consitency regarding the location, nature, and importance of national issues and concerns should be maintained among the three levels.

(2) *Analysis of the management situation.* The Assessment is heavily dependent on both supply and demand information pertaining to each of the resources. This information pertains to existing and future conditions. Resource supply potentials and use opportunities will be surveyed and maintained at the Forest or State level and summarized for use at the regional or national level. Assumptions and methodology for projecting regional, or national resource demands will be compatible.

(3) *Proposed Program alternatives.* The Program is formulated from the Assessment analysis of policy issues, and from alternative program objectives prepared at the national level and reviewed and evaluated at the regional and forest levels for feasibility and compatibility with regional and forest plans.

(4) *Final Program direction.* After finalization of the Program, objectives are distributed to the regions, which in turn distribute regional objectives to each of the designated forest planning areas. State and Private Forestry program levels are coordinated with each of the states in the region. Research proposed programs and objectives are coordinated with the primary research station(s) in the region, although research activities in the region may be carried out by other research stations.

(d) Although no separate statement will be prepared, the Program will contain the elements included in an environmental impact statement pursuant to section 102(2)(C) of NEPA, as provided in §§ 1502.14–1502.16 of Title 40. An environmental impact statement will be prepared for each regional plan, forest plan, revision, and significant amendment.

§ 219.5 Planning Process.

(a) *General planning approach.* The NEPA environmental assessment process will be included in the process for development of a plan. Except where the planning process requires additional action, a single process will be used to meet the planning requirements and the NEPA process. The planning process adapts to changing conditions by identifying public issues, management concerns, and use and development opportunities. It shall consist of a systematic set of interrelated actions which include at least those set forth in paragraphs (b) through (k), of this section that lead to management direction. Planning actions, in addition to those in this section may be necessary in particular situations. Some actions may occur simultaneously, and it may be necessary to repeat an action as additional information becomes available.

(b) The interdisciplinary team will identify and evaluate public issues, management concerns, and resource use and development opportunities, including those identified through public participation activities and coordination with other Federal agencies, State and local governments, and Indian tribes throughout the planning process. All public issues and management concerns are investigated and evaluated in order of their apparent importance. The responsible Forest Service official shall determine the major public issues, management concerns, and use and development opportunities to be addressed in the planning process.

(c) *Planning criteria.* Criteria will be prepared to guide the planning process and to guide management direction. Planning criteria may apply to collection and use of inventory data and information, analysis of the management situation, and the design and formulation of alternatives. Decision criteria will be developed and used to evaluate alternatives and to select one alternative to serve as the proposed plan. All criteria shall be developed by the interdisciplinary team and approved by the responsible Forest Service official, who shall also approve any revisions to these criteria. Generally, criteria will be based on:

(1) Laws, executive orders, regulations, and Forest Service Manual policy;

(2) Goals and objectives in the Program and regional plans;

(3) Recommendations and assumptions developed from public issues, management concens, and resource use and development opportunities;

(4) The plans and programs of other Federal agencies, State and local governments and Indian tribes;

(5) Ecological, technical and economic factors;

(6) Guidelines for economic analysis practices established by the Chief, Forest Service, that will become effective within one year after final publication of these planning rules in the **Federal Register**; and

(7) The resource management standards and guidelines in § 219.13.

(d) *Inventory data and information collection.* Each responsible Forest Service official shall obtain and keep current inventory data appropriate for planning and managing the resources under his administrative responsibility, and shall assure that the interdisciplinary team has access to the best available data, which may require that special inventories or studies be prepared. The interdisciplinary team will collect, assemble, and use data, maps, graphic material, and explanatory aids, to the degree necessary to plan effectively and execute the environmental assessment. Existing data will be used in planning unless such data is inadequate. Data and information needs may vary as planning problems develop from identification of public issues, management concerns, and resource use and development opportunities. Methods used to gather data will be consistent with those used to monitor consequences of activities resulting from planning and management. Data will be stored for ready retrieval and comparison and periodically will be evaluated for accuracy and effectiveness.

(e) *Analysis of the management situation.* The analysis of the management situation is an assessment of the ability of the planning area to supply goods and services in response to society's demand for those goods and services. The analysis will display the

capability and suitability of the forest to supply outputs and uses, and projected demands for the outputs or uses over time. It will identify any special conditions or situations which involve hazards to the resources of the planning area and their relationship to proposed and possible actions being considered. The analysis will determine:

(1) Ranges of various goods, services and uses that are feasible under existing conditions at various levels of expenditure;

(2) Projections of demand, using best available techniques, with both price and non-price information which, in conjunction with supply cost information, will be used to evaluate the level of demand that maximizes net public benefits; to the extent possible, demand will be assesed as a price-quantity relationship;

(3) Potential to resolve public issues and management concerns;

(4) Technical and economic feasibility of providing the levels of goods, services, and uses resulting from assigned goals and objectives; and

(5) The need, as a result of this analysis, to establish or change management direction.

(f) *Formulation of alternatives.* A reasonable range of practical alternatives as provided in paragraphs (f) (1) and (2) of this section will be formulated by the interdisciplinary team. Alternatives shall be described in draft and final environmental impact statements. The purpose of the management practices proposed will be clearly stated for each alternative.

(l) Initial analysis will include alternatives representative of the range of possible outputs of resources available at each of several expenditure levels. Alternatives chosen for evaluation will be presented in detail in the environmental impact statement. In formulating these alternatives, the following criteria will be met:

(i) Each alternative will be capable of being achieved;

(ii) An alternative representing no change in existing resource outputs, the no-action alternative, will be included;

(iii) All alternatives will provide the treatments neeeded to restore renewable resources;

(iv) Each identified major public issue and management concern will be addressed in an alternative; and

(v) Each alternative will represent the most cost-effective combination of management practices that can meet the objectives established in the alternative.

(2) Each alternative will state at least;

(i) The conditions and uses that will result from long-term application of the alternative;

(ii) The goods and services to be produced, and the timing and flow of these resource outputs; and

(iii) Resource management standards and guidelines.

(g) *Estimated effects of alternatives.* The interdisciplinary team shall estimate and display the physical, biological, economic, and social effects of implementing each alternative. These effects will include at least the following:

(1) The expected outputs for the planning periods, including appropriate marketable goods and services, as well as non-market items, such as protection and enhancement of soil, water and air, and preservation of aesthetic and cultural resource values;

(2) The relationship between local, short-term uses of the renewable resources and the maintenance and enhancement of long-term productivity;

(3) The adverse environmental effects which cannot be avoided;

(4) Resource commitments that are irreversible;

(5) Direct and indirect benefits and costs, estimated in accordance with paragraph (c)(6) of this section will be detailed enough to:

(i) Determine the expected administrative costs of implementing the plan;

(ii) Estimate the real dollar value of all outputs attributable to each plan alternative to the extent that dollar values can be assigned to nonmarket goods and services, using physical outputs or relative indices of value when such values may not be reasonably assigned;

(iii) Estimate real-dollar investments and operating costs;

(iv) Estimate which alternative comes nearest to maximizing net public benefits using a comparison of discounted benefits to discounted cost; and

(v) Evaluate the economic effects of alternatives, including the distribution of goods and services, the payment of taxes and charges, receipt shares, payments to local government, and income and employment in all affected communities, including but not limited to the local community.

(6) Estimate effects on minority groups and civil rights; and

(7) Determine effects on prime farmlands, wetlands and flood plains.

(h) *Evaluation of alternatives.* The interdisciplinary team will evaluate the significant physical, biological, economic and social effects of each management alternative according to the planning decision criteria. The evaluation will include a comparative analysis of all management alternatives and will compare economic efficiency and distributional aspects, outputs of goods and services, and protection and enhancement of environmental resources. The responsible Forest Service official will review the interdisciplinary team's evaluation, will recommend a preferred alternative or alternatives to be identified in the draft environmental impact statement.

(i) *Selection of alternative.* After publication of the draft environmental impact statement, the interdisciplinary team will evaluate public comments and, as necessary, revise the appropriate alternative. The responsible Forest Service official will recommend the selected alternative for the final environmental impact statement using the decision criteria developed pursuant to § 219.5(c). The official shall document the selection with a description of the benefits, relative to other alternatives as described in paragraph (h) of this section.

(j) *Plan implementation.* Implementation of the plan (selected alternative) is a continuous activity composed of three annual processes: program budget proposals, program budget allocations, and project implementation. During the implementation of each plan the following requirements, as a minimum, will be met:

(1) The responsible Forest Service official shall assure that annual program proposals and implemented projects are in compliance with the plan;

(2) Program budget allocations meet the objectives and are consistent with all applicable standards and guidelines specified in the plan; and

(3) Plan implementation is in compliance with §§ 219.9(c) and 219.11(d).

(k) *Monitoring and evaluation.* At intervals established in the plan, management activities will be evaluated on a sample basis to determine how well objectives have been met and how closely management standards and guidelines have been applied. The results of monitoring and evaluation may be used to analyze the management situation during revision of the plan as provided in paragraphs (k) (1), (2) and (3) of this section.

(1) The plan will describe the following monitoring activities:

(i) The actions, effects, or resources to be measured, and the frequency of measurements;

(ii) Expected precision and reliability of the monitoring process; and

(iii) The time when evaluation will be reported.

(2) Evaluation reports will contain for each monitored management activity at least a quantitative estimate of performance comparing outputs and services and their costs with those projected by the plan and documentation of evaluated measured effects.

(3) Based upon the evaluation reports, the responsible Forest Service official will make changes in management direction, or revise or amend the plan as necessary to meet the goals and objectives.

§ 219.6 Interdisciplinary Approach.

(a) A team representing several disciplines shall be used at each level of planning. The purpose of such a team is to coordinate and integrate planning activities. Through interactions among its members, the team will integrate knowledge of the physical, biological, economic and social sciences, and design arts into the planning process. Team functions include, but are not limited to:

(1) Assessing the problems and resource use and development opportunities associated with the production of goods and services;

(2) Obtaining the public's views about possible decisions;

(3) Coordinating planning activities within the Forest Service and with local, State and other Federal agencies;

(4) Developing the land and resource management plan and associated environmental impact statement pursuant to the planning process;

(5) Giving the responsible Forest Service official an integrated perspective on land and resource management planning; and

(6) Establishing monitoring and evaluation standards and requirements for planning and management activities.

(b) The team shall be composed of Forest Service personnel who collectively represent specialized areas of technical knowledge about natural resource management applicable to the area being planned. The team will consider problems collectively, rather than separating them along disciplinary lines. The team may consult persons other than Forest Service employees when required specialized knowledge does not exist within the team itself.

(c) The responsible Forest Service official, in appointing team members, shall determine and consider the qualifications of each team member on the basis of the complexity of the planning problem. Each team member shall, as a minimum, either have successfully completed a course of study in an accredited college or university leading to a bachelor's or degree in one or more specialized areas of assignment or have recognized expertise and experience in professional investigative, scientific, or other responsible work in specialities which members represent. In addition to technical knowledge in one or more resource specialities, members should possess other attributes which enhance the interdisciplinary process that, as a minimum, should include:

(1) An ability to solve complex problems;

(2) Skills in communication and group interaction;

(3) Basic understanding of land and natural resource planning concepts, processes, and analysis techniques; and

(4) The ability to conceptualize planning problems and feasible solutions.

(d) The responsible Forest Service official shall appoint a leader of the inderdisciplinary team. Team leadership should be assigned to individuals possessing both a working knowledge of the planning process and the ability to communicate effectively with team members. The team leader shall coordinate the array of specialists, focusing their attention on team goals.

§ 219.7 Public Participation.

(a) The land and resource management planning process determines how the lands of the National Forest System are to be managed. The public shall be encouraged to participate throughout the planning process. The intent of public participation is to:

(1) Inform the public of Forest Service land and resource planning activities;

(2) Provide the public with an understanding of Forest Service programs and proposed actions;

(3) Ensure that the Forest Service understands the needs and concerns of the public;

(4) Broaden the information base upon which land and resource management planning decisions are made; and

(5) Demonstrate, to the extent practicable, the use of public input in reaching planning decisions.

(b) Public participation in the preparation of draft environmental statements for planning shall begin with the publication of a notice of intent in the **Federal Register**. After this publication, all public participation for land and resource management planning shall be coordinated with that required by the NEPA and its implementing regulations.

(c) Public participation, as deemed appropriate by the responsible Forest Service official, will be used early and often throughout the development, revision, and significant amendment of plans. Public participation shall begin with a media notice, which includes the following information:

(1) The description of the proposed planning action;

(2) The description and map of the geographic area affected;

(3) The issues expected to be discussed;

(4) The kind, extent, and method(s) of public participation to be used;

(5) The times, dates, and locations scheduled or anticipated, for public meetings;

(6) The name, title, address, and telephone number of the Forest Service official who may be contacted for further information; and

(7) The location and availability of documents relevant to the planning process.

(d) Public participation activities should be appropriate to the area and people involved. Means of notification should be appropriate to the level of planning. Public participation activities may include, but are not limited to, requests for written comments, meetings, conferences, seminars, workshops, tours, and similar events designed to foster public review and comment. To ensure effective public participation, the objectives of participation activities will be defined beforehand by the interdisciplinary team. The Forest Service shall state the objectives of each participation activity to assure that the public understands what type of information is needed and how this information relates to the planning process.

(e) Public comments will be analyzed individually, and by type of group and organization to determine common areas of concern and geographic distribution. The results of this analysis will be evaluated to determine the variety and intensity of viewpoints about ongoing and proposed planning, and management standards and guidelines. Conclusions about comments will be used to the extent practicable in decisions that are made.

(f) The primary purpose of public participation is to broaden the information base upon which planning decisions are made. Public participation activities also will help in monitoring and evaluation of implemented plans. Suitable public participation formats, requirements, and activities will be

determined by the responsible Forest Service official.

(g) All scheduled public participation activities will be documented by a summary of the principal issues discussed, comments made, and a register of participants.

(h) At least 30 days' public notice will be given for public participation activities associated with the development of national or regional plans. At least 15 days' public notice will be given for activities associated with forest plans. Any notice requesting written comments on national and regional planning will allow at least 90 calendar days for responses. A similar request about forest planning will allow at least 30 calendar days for responses.

(i) A list of individuals and groups known to be interested in or affected by the plan shall be maintained. They shall be notified of public participation activities.

(j) The responsible Forest Service official, or his representative, shall attend all Forest Service public participation activities.

(k) Copies of approved plans will be available for public review, as follows:

(1) The Assessment and the Program will be available at national headquarters, each regional office, each forest supervisor's office, and each district ranger's office;

(2) The regional plan will be available at national headquarters, that regional office and regional offices of contiguous regions, each forest supervisor's office of forests within and contiguous to that region, and each district ranger's office in that region;

(3) The forest plan will be available at the regional office for that forest, that forest supervisor's office and forest supervisors' offices contiguous to that forest, each district ranger's office in that forest, those district rangers' offices in other forests that are contiguous to that forest, and at least one additional location determined by the forest supervisor, which will offer convenient access to the public; and

(4) The above plans may be made available at other locations convenient to the public.

(l) Supporting documents to plans will be available at the office where the plan was developed.

(m) Upon issuance of a draft environmental impact statement on a plan, revision, or significant amendment, and concurrent with the public participation activities of this section, the public shall have a 3-month period to review the statement for the proposed plan, revision, or significant amendment. During that time, additional public participation activities will take place to review the actions proposed in the draft environmental impact statement.

(n) Fees for reproducing requested documents will be charged according to the Forest Service schedule for Freedom of Information Act request (7 CFR 1.1 et seq., Appendix A).

(o) Public participation activities set forth in this section are designed to accomodate all public input, including objections to any aspect of planning under this regulation. Therefore, objections to planning decisions pursuant to this regulation are excluded from review under § 211.19 and any other administrative appeal procedure. This exclusion does not affect the right to appeal decision implementation, after final plan approval, on the grounds of nonconformity with the plan or because a decision otherwise constitutes an appealable grievance. This exclusion also does not affect the right to appeal the Chief's decision under § 219.12(d)(2).

§ 219.8 Coodination of Public Planning Efforts.

(a) Efficient management of the resources of the National Forest System benefits from planning that is thoroughly coordinated among all levels of government, including other Federal agencies, State and local governments, and Indian tribes. Such coordination ensures that government objectives, policies, and programs for resource management are compatible to the extent possible. Therefore, the Forest Service shall coordinate its national, regional, and forest planning with the equivalent and related planning efforts of other Federal agencies, State and local governments, and Indian tribes.

(b) The responsible Forest Service official, through the interdisciplinary team, shall coordinate Forest Service planning with land and resource management planning of other affected government entities and Indian tribes to ensure that planning includes:

(1) Recognition of the objectives of other Federal, State and local governments, and owners of intermingled and adjacent private lands, as expressed in their plans and policies;

(2) An assessment of the interrelated impacts of these plans and policies;

(3) A determination of how each Forest Service plan should deal with the impacts identified; and

(4) Where conflicts are identified, consideration of alternatives for their resolution.

(c) The responsible Forest Service official shall give notice of the preparation, revision, or significant amendment of a land and resource management plan, along with a general schedule of anticipated planning actions, to the State Clearinghouse (OMB Circular A–95) for circulation among State agencies. The same notice will be mailed to all Tribal or Alaska Native leaders whose tribal lands may be impacted, and to the heads of county boards for the counties that are involved. These notices shall be issued simultaneously with the public notice required in § 219.7(b).

(d) To facilitate coordination with State governments, regional foresters will seek agreements with Governors or their designated representatives on procedural measures such as exchanging information, providing advice and participation, and time frames for receiving State government input and review. If an agreement is not reached, the regional forester will provide an opportunity for Governor and State agency review, advice, and suggestion on guidance that the regional forester believes could affect or influence State government programs.

(e) The responsible Forest Service official and the interdisciplinary team, in developing land and resource plans, shall meet with the designated State official (or designee), advisory persons, representatives of other Federal agencies and Indian tribal governments at the beginning of the planning process to develop procedures for coordination. As a minimum, such conferences shall also be held after public issues and management concerns have been identified and prior to recommending the selected alternative. Such conferences may be held in conjunction with other public participation activities, provided that the opportunity for government officials to participate in the planning process is not thereby reduced.

(f) The responsible Forest Service official shall conduct, during the planning process, an appraisal of the planning and land use policies of other Federal agencies, State and local governments and Indian tribes. The appraisal intensity will be appropriate to the planning level and requirements of the envisioned plan. This appraisal will include, but not be limited to, plans affecting renewable natural resources and minerals, recreation, community and economic development, land use, transportation, wildlife, water and air pollution control, cultural resources, and energy. The interdisciplinary team will document this appraisal in the planning process records.

(g) The responsible Forest Service official, in the development of forest plans and to the extent feasible, shall notify the owners of lands that are

intermingled with, or dependent for access upon, national forest lands, and on which management is being practiced similar in character to that being practiced on adjacent national forest lands. Planning activities should then be coordinated to the extent feasible with these owners. The results of this coordination shall be included in the plan as part of the appraisal required in paragraph (f) of this section.

(h) The responsible Forest Service official, in developing the forest plan, shall seek input from other Federal, State and local governments, universities, and private research organizations in resolving management concerns in the planning process and in identifying areas where additional research is needed. This input should be included in the discussion of the research needs of the designated forest planning area.

§ 219.9 Regional Planning Procedure.

(a) *Regional plan.* Regional planning will provide forest planning areas with goals and objectives, regional issue resolution, and program coordination for National Forest System, State and Private Forestry, and Research. A plan will be developed for each administratively designated region in the National Forest System. The preparation of a regional plan, revision, or significant amendment will comply with the requirements of the planning process established in §§ 219.5 and 219.10 and this section.

(b) *Responsibilities.* The Chief, Forest Service, shall establish agency-wide policy for regional planning and approve all regional plans, revisions, or significant amendments. The regional forester shall be responsible for the preparation of a regional plan, and revisions or significant amendments to the regional plan. The regional interdisciplinary team shall develop a regional plan using the process established in § 219.5 which shall include the steps in paragraphs (b) (1) and (2) of this section.

(1) A draft environmental impact statement will be prepared, describing the proposed plan, revision, or significant amendment. A notice of intent to prepare this statement will be issued in the Federal Register. The draft statement will identify a preferred alternative. Beginning at the time of notification in the Federal Register, the statement will be available for public comment for 90 days or 3 months, whichever is longer, at convenient locations in the vicinity of the lands covered by the plan, revision, or significant amendment. During this period, and in accordance with the provisions in § 219.7, the responsible Forest Service official shall publicize and hold public participation activities as deemed appropriate for adequate public input.

(2) A final environmental impact statement will be prepared, and after the regional forester has reviewed and concurred in the statement, the regional forester shall recommend to the Chief that it be filed with the Environmental Protection Agency. At least 30 days are required between the date of notice of filing of the final environmental impact statement and the decision fo implement actions specified in the plan, revision, or significant amendment. The plan, revision, or significant amendment shall be based on the selected alternative.

(c) Plan approval. The Chief, Forest Service, shall review the proposed plan, revision, or significant amendment and the final environmental impact statement and take either of the actions in paragraphs (c)(1) and (2) of this section.

(1) Approve the proposal and the environmental impact statement. If approved, the proposal will not become effective until at least 30 days after publication of the notice of the filing of the final environmental impact statement. After such 30-day period, the Chief shall, in compliance with § 1505.2 of Title 40, attach to the proposal a concise public record of decision which documents the approval. The record of decision will accomplish the following:

(i) State the decision;

(ii) Identify all alternatives considered in making the decision on the plan, revision, or significant amendment;

(iii) Specify the preferred alternative or alternatives;

(iv) Identify and discuss all factors considered by the Forest Service in making the planning decision, including how such factors entered into its decision; and

(v) State whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adapted, and, if not, why they were not.

(2) Disapprove the proposal or the environmental impact statement, which shall be returned to the regional forester with a written statement of the reasons for disapproval. The Chief may also specify a course of action to be undertaken by the regional forester in order to remedy the deficiencies, errors, or omissions of the proposal or environmental impact statement.

(d) *Conformity.* The regional forester shall manage the national forest lands under his jurisdiction in accordance with the regional plan. The regional forester or area director shall assure that all State and Private Forestry programs planned with the States or other governmental agencies are coordinated with the regional plan. The research station director shall use the regional plan to identify research needs for National Forest System lands. Differences between annual budget proposals and actual funding allocations may require the regional forester to make changes in scheduling. When each regional plan is approved, each forest plan in that region will be revised or amended to bring it into conformity as soon as practicable. When each regional plan is revised or amended the affected forest plans will be revised or amended to conform as soon as practicable.

(e) *Amendment.* The regional forester may amend the regional plan through an environmental assessment which will be used to determine the significance of proposed amendments. Where significance indicates the preparation of an environmental impact statement is necessary, the amending process will follow the same procedure as used in the preparation of the plan. If the amendment is determined not to be significant, it may be implemented by the responsible official after public notice. The regional plan will be reviewed for possible amendment in conjunction with the development of the Assessment and Program or whenever the funded and implemented program deviates significantly from the 5-year levels specified in the regional plan.

(f) *Revision.* The regional forester shall determine by an analysis of the management situation whether a revision is necessary because conditions or the demands of the public in the region have changed significantly. Revision will not become effective until considered and approved in accordance with the requirements for the development and approval of a regional plan.

(g) *Planning records.* The regional forester and the interdisciplinary team will develop and maintain a system that records decisions and activities that result from the process of developing a regional plan, revision or significant amendment. This system will contain all planning records including a work plan to guide and manage planning, the precedures which were used in completing each planning action and the results of those actions. These records document the accomplishment of legal and administrative planning requirements. They include at least the draft environmental impact statement, final environmental impact statement,

regional plan, and record of decision. The adequacy of the record system will be approved by the regional forester.

(h) *Regional plan content.* The following general format and content outline is required for all regional plans. In addition, the regional forester may specify formats and require further content within the following outline appropriate to the planning needs of that region:

(1) A brief description of the major public issues and management concerns which are pertinent to the region, indicating the disposition of each issue or concern;

(2) A summary of the analysis of the regional management situation, including a brief description of the existing management situation, demand and supply projections for resource commodities and services, production potentials, and resource use and development opportunities;

(3) Description of management direction including programs, goals and objectives;

(4) A distribution of regional objectives to each of the forest planning areas, and additional objectives added to reflect specific regional needs;

(5) Management standards and guidelines and those specific standards and guidelines listed in paragraph (d) of § 219.10;

(6) Description of the monitoring and evaluation necessary to determine and report achievements and effects;

(7) Appropriate references to information used in development of the regional plan; and

(8) The names of interdisciplinary planning team members, together with a summary of each member's qualifications and areas of expertise;

(i) *Monitoring and evaluation.* Monitoring and evaluation of planned actions and effects will be carried out in compliance with § 219.5(k). Monitoring and evaluation will include, but is not limited to:

(1) Management practices relating to regional or subregional programs;

(2) State and Private Forestry programs carried out in conjunction with states or other governmental agencies;

(3) Economic and social impact on regional public;

(4) Resource outputs or environmental impacts which relate to areas more widespread than national forests or States;

(5) Research programs which are related to other research activities or ongoing management practices on a regional scale; and

(6) National System programs.

§ 219.10 Criteria for Regional Planning Actions.

(a) The regional interdisciplinary team, as directed by the regional forester, shall follow the process and procedures established in §§ 219.5 through 219.9 in preparing the regional plan, revision, or significant amendment. The appropriate planning actions of the regional planning process will be guided by at least the criteria provided in paragraphs (b) through (g) of this section. Additional planning criteria may be found in the guidelines for managing specific renewable resources set forth in the Forest Service Manual.

(b) In addition to public issues and management concerns identified through public participation and coordination, each regional plan shall address issues and concerns referred from national or forest planning. Some management concerns that should be considered in regional and in forest planning are the needs to:

(1) Provide goods and services efficiently;

(2) Produce timber and wood fiber;

(3) Manage and utilize range resources and improve range grazing;

(4) Manage fire to improve and protect resources;

(5) Protect resources from disease, pests and similar threats;

(6) Enhance water quality and quantity, soil productivity, and restore watershed conditions;

(7) Adjust landownership as needed to support resource management goals;

(8) Provide various recreation options;

(9) Maintain or improve fish and wildlife habitats;

(10) Improve critical and essential habitats of threatened or endangered plant and animal species;

(11) Assess probabilities of mineral exploration and development for immediate and future needs, and consider non-renewable resources in the mangement of renewable natural resources;

(12) Construct, operate, and maintain transportation facilities;

(13) Identify, protect, and enhance the visual quality;

(14) Require corridors to the extent practicable, to minimize adverse environmental impacts caused by the proliferation of separate rights-of-way;

(15) Discover, manage, protect, and interpret cultural resource values which are qualified or many qualify for inclusion in the National Register of Historic Places; and

(16) Identify typical examples of important botanic, aquatic, and geologic types, and protect them through establishment of research natural areas.

(c) Regional plans will contribute and respond to the Assessment and Program by providing long-range policies, goals, and objectives contained in the Program; resource production objectives for each forest plan; and guidelines to resolve public issues and management concerns identified through public participation and coordination activities.

(d) Each regional plan will establish standards and guidelines for:

(1) The maximum size, dispersal, and size variation of tree openings created by the application of even-aged managment and the state of vegetation that will be reached before a cutover area is no longer considered an opening, using factors enumerated in § 219.13(d);

(2) The biological growth potential to be used in determining the capability of land for timber production as required in § 219.12(b)(1)(ii);

(3) Recommended transportation corridors and associated standards for forest planning, such as standards for corridors, for transmission lines, pipelines, and water canals. The designation of corridors shall not preclude the granting of separate rights-of-way over, upon, under, or through the public lands where the authorized official determines that confinement to a corridor is not appropriate;

(4) Identify potential uses of available air quality increments (42 U.S.C. 7473(b)) and protect the portion of the increment needed to implement forest plans; and

(5) The unit of measure for expressing mean annual increment as required in § 219.12(d)(1)(ii)(C).

(e) Public participation and coordination activities will be adapted to the circumstances of regional planning. Particular efforts will be made to involve regional and national representatives of interest groups. Coordination will stress involvement with appropriate Federal agencies, State and local governments, and Indian tribes. Regional foresters will seek agreements with Governors, or their designated representatives, on procedures for coordination in accordance with section 219.8(d).

(f) Data for regional planning will be based principally on information from forest planning, with other data provided by the States, other Federal agencies, and private sources. Very little new data will be gathered through land and resource inventories. Data and information standards and guidelines established nationally will be followed in structuring and maintaining required data.

(g) The regional analysis of the management situation will, as appropriate, consider results of each

forest's analysis of the management situation.

§ 219.11 Forest Planning Procedure.

(a) *Forest Plan.* The preparation of a forest plan, revision, or significant amendment will comply with the requirements of the planning process established in §§ 219.5 and 219.12 and this section.

(b) *Responsibilities.* The forest supervisor and the interdisciplinary team shall have the responsibilities set forth in paragraphs (b) (1) and (2) of this section.

(1) *Forest supervisor.* The forest supervisor shall have overall responsibility for the preparation and implementation of the forest plan and shall appoint and supervise the interdisciplinary team.

(2) *Interdisciplinary team.* The team shall implement the public participation and coordination activities. The team shall continue to function even though membership may change, and shall monitor and evaluate planning results and recommended revisions and amendments. The interdisciplinary team shall develop a forest plan, revision, or significant amendment using the planning process established in § 219.5, including the steps in paragraphs (b)(2)(i) and (ii) of this section.

(i) A draft environmental impact statement will be prepared, describing the proposed plan, revision, or significant amendment. A notice of intent to prepare this statement will be issued in the **Federal Register.** The draft statement will identify a preferred alternative. Beginning at the time of notification in the **Federal Register,** the statement will be available for public comment for 90 days or 3 months, whichever is longer, at convenient locations in the vicinity of the lands covered by the plan, revision, or significant amendment. During this period, and in accordance with the provisions in § 219.7, the responsible Forest Service official shall publicize and hold public participation activities as deemed appropriate for adequate public input.

(ii) A final environmental impact statement will be prepared, and after the forest supervisor has reviewed and concurred in the statement, the forest supervisor shall recommend to the regional forester that it be filed with the Environmental Protection Agency. At least 30 days are required between the date of notice of filing of the final environmental impact statement and the decision to implement actions specified in the plan, revision, or significant amendment. The plan, revision, or significant amendment shall be based on the selected alternative.

(c) *Approval process.* The regional forester shall review the proposed plan, revision, or significant amendment and the final environmental impact statement and take one of the actions in paragraphs (c)(1) through (3) of this section.

(1) Approve the proposal and the environmental impact statement. If approved, the proposal will not become effective until at least 30 days after publication of the notice of the filing of the final environmental impact statement. After such 30-day period, the regional forester shall, in compliance with § 1505.2 of Title 40, attach to the proposal a concise public record of decision which documents the approval. The record of decision will accomplish the following:

(i) State the decision;

(ii) Identify all alternatives considered in making the decision on the plan, revision, or significant amendment;

(iii) Specify the preferred alternative or alternatives;

(iv) Identify and discuss all factors considered by the Forest Service in making the planning decision, including how such factors entered into its decisions; and

(v) State whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and, if not, why they were not.

(2) Disapprove the proposal or the environmental impact statement, which shall be returned to the forest supervisor with a written statement of the reasons for disapproval. The regional forester may also specify a course of action to be undertaken by the forest supervisor in order to remedy the deficiencies, errors, or omissions of the proposal or impact statement.

(3) Transmit to the Chief, Forest Service, for approval or disapproval, if the selected harvest schedule is not the base timber harvest schedule for the designated forest planning area as required in § 219.12(d)(2).

(d) *Conformity.* As soon as practicable after approval of the plan, revision, or significant amendment, the forest supervisor shall ensure that, subject to valid existing rights, all outstanding and future permits, contracts, cooperative agreements, and other instruments for occupancy and use of affected lands are in conformity with the plan. All subsequent administrative activities affecting such lands, including budget proposals, will be in compliance with the plan. The forest supervisor may change proposed scheduling to respond to minor differences between planned annual budgets and appropriated funds. Such scheduled changes will be considered an amendment to the forest plan, but shall not require preparation of an environmental impact statement unless the changes significantly alter the relationship between levels of multiple-use goods and services projected under planned budget proposals as compared to those levels projected with actual appropriations. An environmental impact statement will be prepared if the scheduling changes will result in significant adverse environmental impacts not taken into account in an existing environmental impact statement.

(e) *Amendment.* The responsible Forest Service official may amend a plan through an environmental assessment or through the procedures established for the preparation and approval of the forest plan. Such an amendment will be deemed significant if the assessment indicates the need to prepare an environmental process will follow the same procedure as in the preparation of the plan. If, based on the environmental assessment, the amendment is determined not to be significant, it may be implemented by the forest supervisor following appropriate public notification.

(f) *Revision.* A forest plan will be revised at least every 10 years, or more frequently whenever the forest supervisor determines that conditions or the demands of the public in the area covered by the plan have changed significantly. The interdisciplinary team may, through the monitoring and evaluation process, recommend a revision of the forest plan at any time. Revisions are not effective until considered and approved in accordance with the requirements for the development and approval of a forest plan. The forest supervisor shall review the conditions on the land covered by the plan at least every 5 years to determine whether conditions or demands of the public have changed significantly.

(g) *Planning records.* The forest supervisor and interdisciplinary team will develop and maintain a system that records decisions and activities that result from the process of developing a forest plan, revision, or significant amendment. Records will be maintained that support analytical conclusions and alternative plans made by the team and approved by the forest supervisor throughout the planning process. Such supporting records provide the basis for the development of, revision, or significant amendment to the forest plan

and associated environmental documents.

(h) *Forest plan content.* The forest plan will contain the following:

(1) A brief description of the major public issues and management concerns which are pertinent to the forest, indicating the disposition of each issue or concern;

(2) A summary of the analysis of the management situation, including a brief description of existing management situations, demand and supply conditions for resource commodities and services, production potentials, and use and development opportunities;

(3) Long-range policies, goals, and objectives, and the specific management direction and practices to achieve the goals and objectives of the plan;

(4) Proposed vicinity, timing, standards and guidelines for proposed and probable management practices;

(5) Monitoring and evaluation requirements which are pertinent at the forest level;

(6) Appropriate references to information used in development of the forest plan; and

(7) Names of the interdisciplinary planning team members, together with a summary of each member's qualifications and primary responsibilities or contributions to the forest planning effort.

(i) *Monitoring and evaluation.* Monitoring and evaluation of planned actions and effects will be carried out in compliance with § 219.5(k) and paragraphs (i) (1) through (3) of this section. In addition, management practices associated with each of the resources planned will be evaluated with reference to the standards and guidelines contained in the forest plan through monitoring on an appropriate sample basis. Methods used to monitor consequences of activities resulting from planning and management practices will be consistent with those used to gather data and information.

(1) Monitoring requirements in the forest plan will include descriptions of:

(i) Activities, practices and effects that will be measured and the frequency of measurements;

(ii) Expected precision and reliability of the monitoring process; and

(iii) The time at which evaluation reports will be prepared.

(2) An evaluation report will be prepared for management practices monitored and will contain at least the following:

(i) A quantitative estimate of performance comparing outputs and services with those projected by the forest plan;

(ii) Documentation of measured effects, including any change in productivity of the land;

(iii) Recommendations for changes;

(iv) A list of needs for continuing evaluation of management systems and for alternative methods of management; and

(v) Unit costs associated with carrying out the planned activities as compared with unit costs estimated in the forest plan.

(3) Based upon the evaluation reports, the interdisciplinary team shall recommend to the forest supervisor such changes in management direction, revisions, or amendments to the forest plan as deemed necessary.

§ 219.12 Criteria for Forest Planning Actions.

(a) In the preparation of the proposed forest plan, revision, or significant amendment, the interdisciplinary team, as directed by the forest supervisor, shall follow the planning process established in §§ 219.5 through 219.8, 219.11, and in this section. The criteria in paragraphs (b) through (m) of this section provide the minimum requirements to be considered if appropriate for the forest being planned. Additional planning criteria may be found in the guidelines for managing specific renewable resources set forth in the Forest Service Manual.

(b) Each forest plan will identify lands available, capable, and suitable for timber production and harvesting during the planning process in accordance with the planning criteria in paragraphs (b) (1) through (5) of this section.

(1) During the analysis of the management situation, data on all National Forest System lands will be reviewed and those lands meet all of the requirements of paragraphs (b)(1) (i) through (iv) of this section will be tentatively identified as available, capable and suitable for timber production. Those lands that fail to meet any of these requirements will be designated as not suited for timber production.

(i) The land has not been legislatively or administratively withdrawn from timber production.

(ii) The biological growth potential for the land is equal to or exceeds the minimum standard for timber production defined in the regional plan.

(iii) Technology is available that will ensure timber production from the land without irreversible resource damage to soils, productivity, and watershed conditions, or without significant adverse impact on threatened or endangered species.

(iv) There is reasonable assurance that such lands can be adequately restocked within 5 years after final harvest as provided in § 219.13(h)(3).

(2) Lands that have been tentatively identified as available, capable, and suitable for timber production in paragraph (b)(1) of this section will be further reviewed and assessed prior to the formulation of alternatives to determine their potential economic efficiency in commercial timber production. On the basis of this assessment lands will be ranked by appropriate benefit-cost criteria to establish relative potential economic efficiency in meeting the timber production goals for the planning area. This assessment will compare the anticipated direct benefits of growing and harvesting trees to the anticipated direct costs to the government, including capital expenditures required by timber production and the interest on those expenditures, in accordance with § 219.5 and in paragraphs (b)(2) (i) through (iii) of this section.

(i) Direct benefits are expressed by expected future stumpage prices.

(ii) Direct costs include the anticipated investments, maintenance, operating, and management and planning costs attributable to timber production activities, and any costs that may be reasonably attributed to mitigation measures necessitated by the impacts of timber production. Only the additional expenditures required for timber growing and harvesting activities, including the cost of the road system apportioned to timber are to be included in direct costs.

(iii) Economic efficiency analysis is to be based on the assumption that the lands are managed primarily for timber production and the intensity of management and degree of timber utilization are determined in accordance with paragraph (d)(1)(ii)(A) of this section. Rotation periods will be consistent with those assumed for purposes of determining the long-term sustained-yield capacity as provided in paragraph (d)(1)(ii)(C) of this section. Economic analysis must consider costs and returns from conversion of existing timber inventory in addition to long-term potential yield.

(3) During the formulation of each alternative, combinations of resource activities will be defined to meet management objectives. These combinations of resource activities shall consider the relative potential economic efficiency of lands for timber production as determined in paragraph (b)(2) of this section.

(4) During the evaluation of each alternative, lands shall be tentatively identified as not suited for timber production if:

(i) Based on a consideration of multiple-use objectives for the planning area, the land is determined suitable for resource uses that preclude timber production;

(ii) Other multiple uses of the area limit timber production activities to the point where the silvicultural standards and guidelines set forth in section 219.13 cannot be met; or

(iii) The lands are not cost-effective in meeting forest objectives which require vegetation manipulation for the alternative under consideration.

(5) Selection among alternatives shall be done in accordance with § 219.5(i). Lands identified as tentatively not suited in paragraph (b)(4) will be designated as not suited for timber production in the selected alternative.

(c) When vegetation is altered by management, the methods, timing, and intensity of the practices determine the level of benefits that can be obtained from the affected resources. The vegetation management practices chosen for each vegetation type and circumstance will be defined in the forest plan with applicable standards and guidelines and the reasons for the choices. Where more than one vegetation management practice will be used in a vegetation type, the conditions under which each will be used will be clearly defined. The choices will be based upon thorough reviews of technical and scientific literature and practical experience, with appropriate evaluation of this knowledge for relevance to the specific vegetation and site conditions. On National Forerst System land, the vegetation management practice chosen will comply with the management standards and guidelines specified in § 219.13(c).

(d) The forest plan will provide the determination of the allowable sale quantity and the corresponding timber harvest schedule. Planning criteria for scheduling and consideration of departures from the base harvest schedule will be addressed in § 219.5(f) and include the criteria in paragraphs (d) (1) and (2) of this section.

(1) Alternatives shall be formulated that include determinations of the quantity of the timber that may be sold during the planning period. These determinations will be based on the principle of sustained yield and consider only those lands currently identified as capable, available and suitable, for timber production which meet the constraints set out in § 219.13. For each managment alternative, the determination will include a calculation of the long-term sustained-yield capacity and the base harvest schedule and when appropriate, a calculation of timber harvest alternatives that may depart from the base harvest schedule as provided in paragraph (d)(1) (i) through (iii) of this section.

(i) For the base harvest schedule the planned sale and harvest for any future decade will be equal to or greater than the planned sale and harvest for the preceding decade provided that the planned harvest is not greater than the long-term sustained-yield capacity.

(ii) The determinations of the long-term sustained-yield capacity, base harvest schedules, and departure alternatives to the base harvest schedule will be made on the basis of the guidelines which follows:

(A) For the long-term sustained-yield capacity and the base harvest schedule, assume an intensity of management and degree of timber utilization consistent with the goals, assumptions, and standards contained in, or used in the preparation of the current Program and regional plan. For the base harvest schedule, the management and utilization assumptions will reflect the projected changes in practices for the four decades of the regional plan. Beyond the fourth decade, the assumptions will reflect those projected for the fourth decade of the regional plan;

(B) For departure alternatives to the base harvest schedule which provide outputs above the current regional plan, assume an appropriate management intensity;

(C) In accordance with the established standards, assure that all even-aged stands scheduled to be harvested during the planning period shall generally have reached the culmination of mean annual increment of growth. Mean annual increment will be based on management intensities and utilization standards assumed in paragraphs (d)(1)(ii)(A) and (B) of this section and expressed as units of measure consistent with the regional plan. Exceptions to these standards are permitted for the use of sound silvicultural practices, such as thinning or other stand improvement measures; for salvage or sanitation harvesting of timber stands which are substantially damaged by fire, windthrow or other catastrophe, or which are in imminent danger from insect or disease attack; or for the removal of particular species of trees after consideration has been given to the multiple uses of the area being planned and after completion of the public participation process applicable to the preparation of a forest plan; and

(D) For all harvest schedules, achieve a forest structure by the conclusion of the scheduling period that will enable perpetual timber harvest thereafter at the long-term sustained-yield capacity, consistent with the long-range multiple-use objectives of the alternative.

(iii) An alternative providing for departures from the base harvest schedules will be considered and formulated when any of the following conditions occur:

(A) Attainment of the multiple-use objectives of the forest plan can be enhanced by more rapid and efficient achievement of the long-term sustained-yield capacity of the forest owing to present forest structure or by preventing and reducing high mortality losses from any cause;

(B) Implementation of the base harvest schedule would cause instability or dislocation in the economic area in which the forest is located; or

(C) None of the alternatives already formulated provide a timber harvest schedule that meets the goals and objectives of the Program as provided in § 219.4(b)(3).

(2) The selected harvest schedule provides the allowable sale quantity (the quantity of timber that may be sold from the area of land covered by the forest plan) for the plan period. If the selected harvest schedule is not the base timber harvest schedule for the designated forest planning area, the forest plan will be transmitted to the Chief, Forest Service, for approval. The decision of the Chief may be appealed to the secretary pursuant to the procedures in § 219.11.

(e) Lands identified in the second roadless area review and evaluation process (RARE II) as lands to be managed for purposes other than wilderness need not be assessed for wilderness in development of the initial generation of forest plans prepared under this subpart. When revising the forest plan, roadless areas within an adjacent to the forest, will be evaluated and considered for recommendation as potential wilderness areas, as provided in paragraphs (e) (1) and (2) of this section

(1) During analysis of the management situation the following areas will be evaluated:

(i) All previously inventoried wilderness resources not yet designated;

(ii) Areas contiguous to existing wilderness, primitive areas, or administratively proposed wildernesses, regardless of agency jurisdiction;

(iii) Areas, regardless of size, that are contiguous to roadless and undeveloped areas in other Federal ownership that have identified wilderness potential; and

(iv) Areas designated by Congress for wilderness study, administrative proposals pending before Congress, and other legislative proposals pending which have been endorsed by the administration.

(2) Each area designated for evaluation under paragraph (e)(1) of this section will be evaluated in terms of current national guidelines or, in their absence, by criteria developed by the interdisciplinary team with public participation. In the latter case, the criteria will include as a minimum:

(i) The values of the area as wilderness;

(ii) The values foregone and effects on management of adjacent lands as a consequence of wilderness designation;

(iii) Feasibility of management as wilderness, in respect to size, non-conforming use, land ownership patterns, and existing contractual agreements or statutory rights;

(iv) Proximity to other designated wilderness, and relative contribution to the National Wilderness Preservation System; and

(v) The anticipated long-term changes in plant and animal species diversity, including the diversity of natural plant and animal communities of the forest planning area and the effects of such changes on the values for which wilderness areas were created.

(f) The forest plan will provide direction for the management of designated wilderness and primitive areas in accordance with the provisions of Part 293. In particular, it will:

(1) Provide for limiting and distributing visitor use of specific portions in accord with periodic estimates of the maximum levels of use that allow natural processes to operate freely and that do not impair the values for which wilderness areas were created; and

(2) By evaluating the extent to which wildfire, insect, and disease control measures may be desirable for protection of either the wilderness or adjacent areas, provide for such measures when appropriate.

(g) Fish and wildlife habitats will be managed to maintain viable populations of all existing native vertebrate species in the planning area and to maintain and improve habitat of management indicator species. To meet this goal, management planning for the fish and wildlife resource will meet the requirements set forth in paragraph (g)(1) through (7) of this section and the guidelines in Chapter 2620, Forest Service Manual.

(1) The desired future condition of fish and wildlife, where technically possible, will be stated in terms both of animal population trends and of amount and quality of habitat.

(2) Management indicator species will be identified for planning, and the reasons for their selection will be given. The species considered shall include at least: Endangered and threatened plant and animal species identified on State and Federal lists for the planning area; species with special habitat needs that may be influenced significantly by planned management programs; species commonly hunted, fished, or trapped; and additional plant or animal species selected because their population changes are believed to indicate effects of management activities on other species of a major biological community or on water quality. On the basis of available scientific information, the effects of changes in vegetation type, timber age classes, community composition, rotation age, and year-long suitability of habitat related to mobility of management indicator species will be estimated. Where appropriate, measures to mitigate adverse effects will be prescribed.

(3) Biologists from State fish and wildlife agencies and other Federal agencies shall be consulted by the interdisciplinary team in order to coordinate planning with State plans for fish and wildlife.

(4) Access and dispersal problems of hunting, fishing, and other visitor uses will be considered.

(5) The effects of pest and fire management on fish and wildlife populations will be considered.

(6) Population trends of the management indicator species shall be monitored and relationships to habitat changes determined. This monitoring shall be done in cooperation with State fish and wildlife agencies, to the extent practicable.

(7) Critical habitat for threatened and endangered species will be determined, and measures shall be prescribed to prevent the destruction or adverse modification of such habitat. Objectives will be determined for threatened and endangered species that will provide for, where possible, their removal from listing as threatened and endangered species through appropriate conservation measures, including the designation of special areas to meet the protection and management needs of such species.

(h) Identify lands suitable for grazing and browzing in accordance with criteria in paragraphs (h) (1) through (3) of this section and guidelines established in Forest Service Manual 2210.

(1) The procedures used and data obtained will include, but not be limited to, the following:

(i) Range condition and trend studies;

(ii) Records of actual use by domestic livestock, feral estimated percentage utilization of key forage species;

(iii) An estimate of the capability of the rangelands to produce suitable food and cover for the management indicator species of wildlife; and

(iv) An estimate of the present and potential supply of forage for sheep, cattle, and feral animals.

(2) In the analysis of management situation, assess the capability of the planning area to produce forage without permanent impairment of the resources, considering the condition of the vegetation, statutory, and administrative withdrawals, characteristics of soil and slope, and accessibility to grazing and browsing animals.

(3) Alternative range management practices will consider:

(i) Grazing management systems;

(ii) Methods of altering successional stages for range management objectives, including vegetation manipulation as described in § 219.13(c);

(iii) Evaluation of pest problems, and availability of integrated pest management systems;

(iv) Possible conflicts or beneficial interactions among domestic, feral, and wild animal populations, and methods of regulating these;

(v) Physical facilities such as fences, water development, and corrals, necessary for efficient management;

(vi) Existing permits, cooperative agreements, and related obligations; and

(vii) Measures to protect, manage, and control wild free-roaming horses and burros as provided in Part 222, Subpart B. (i) A broad spectrum of dispersed and developed recreation opportunities in accord with identified needs and demands will be provided. Planning to achieve this will be governed by the goals of the regional plan, the requirements of paragraph (i) (1) through (8) of this section, and the guidelines in Chapter 2310, Forest Service Manual.

(1) Forest planning will identify:

(i) The physical and biological characteristics that make land suitable for recreation activities;

(ii) The recreational preferences of user groups; and

(iii) Recreation opportunities on the National Forest System lands.

(2) The supply of recreational facilities to meet present and future needs in the area surrounding the forest will be appraised.

(3) Alternatives will include consideration of establishment of physical facilities, regulation of use, and recreation opportunities responsive to current and anticipated user demands.

(4) In formulation and analysis of alternatives as specified in § 219.5 (f) and (g), interactions among recreation activities and other multiple uses shall be examined. This examination shall consider the impacts of the proposed recreation activities on other uses and values and the impacts of other uses and activities associated with them on recreation opportunities, activities, and quality of experience.

(5) Development and evaluation of alternatives under paragraphs (i) (3) and (4) of this section will be coordinated to the extent feasible with present and proposed recreation activities of local and State land use or outdoor recreation plans, particularly the State Comprehensive Outdoor Recreation Plan and recreation opportunities already present and available on other public and private lands, with the aim of reducing duplication in meeting recreation demands.

(6) Modification of land ownership patterns to meet present and future recreation needs will be considered.

(7) Off-road vehicle use will be planned and implemented to minimize adverse effects on the land and resources, promote public safety, and minimize conflicts with other uses of the National Forest System lands. Forest planning will evaluate the potential effects of vehicle use off-roads and, on the basis of the requirements of Part 295, and the guidelines in Chapter 2355, Forest Service Manual, classify areas and trails of National Forest System lands as to whether or not off-road vehicle use may be permitted.

(j) The effects of mineral exploration and development in the planning area will be considered in the management of renewable resources. When available, the following will be recognized in the forest plan:

(1) Active mines within the area of land covered by the forest plan;

(2) Outstanding or reserved mineral rights;

(3) The probable occurrence of various minerals, including locatable, leasable, and common variety;

(4) The potential for future mineral development; and

(5) The probable effect of renewable resource allocations and management on mineral resources and activities, including exploration and development.

(k) The water and soil management guidelines set forth in Chapter 2510, Forest Service Manual and paragraph (k) (1) through (6) of this section will be followed in planning the management of the water and soil resources.

(1) Current water uses, both consumptive and non-consumptive, within the area of land covered by the forest plan, including instream flow requirements, will be determined.

(2) Existing impoundments, transmission facilities, wells, and other man-made developments on the area of land covered by the forest plan will be identified.

(3) The probable occurrence of various levels of water volumes, including extreme events which would have a major impact on the planning area, will be estimated.

(4) Plans shall comply with the requirements of the Federal Water Pollution Control Act, as amended by the Clean Water of 1977, the Safe Drinking Water act, and all substantive and procedural requirements of Federal, State, and local governmental bodies with respect to the provision of public water systems and the disposal of waste water.

(5) Existing or potential watershed conditions that will influence soil productivity, water yield, water pollution, or hazardous events, will be evaluated.

(6) Measures, as directed in applicable Executive Orders, to minimize risk of flood loss and to restore and preserve floodplain values, and to protect wetlands, will be adopted.

(l) Forest planning will provide for the indentification, protection, interpretation and management of cultural resources on National Forest System lands. Planning for the resource will be governed by the requirements of Federal laws pertaining to historic preservation, the guidelines in Chapter 2360, Forest Service Manual, and the criteria in paragraphs (l) (1) through (3) of this section:

(1) Forest planning will:

(i) Provide an overview of known data relevant to history, ethnography, and prehistory of the area under consideration, including known cultural resource sites;

(ii) Identify areas requiring more intensive inventory;

(iii) Provide for evaluation and identification of sites for the National Register of Historic Places;

(iv) Provide measures for the protection of cultural resources from vandalism and other human depredation, and natural destruction;

(v) Identify the need for maintenance of historic sites on, or eligible for inclusion in, the National register of Historic Places; and

(vi) Identify opportunities for interpretation of cultural resources for the education and enjoyment of the American public.

(2) In the formulation and analysis of alternatives, interactions among cultural resources and other multiple uses shall be examined. This examination shall consider impacts of the management of cultural resources on other uses and activities and impacts of other uses and activities on cultural resource management.

(3) Development and evaluation of program alternatives will be coordinated to the extent feasible with the State cultural resource plan and planning activities of the State Historic Preservation Office and State Archaeologist and with other State and Federal agencies.

(m) Forest planning will provide for the establishment of Research Natural Areas (RNA's). Each plan will make provision for the identification of examples of important forest, shrubland, grassland, alpine, aquatic, and geologic types that have special or unique characteristics of scientific interest and importance and that are needed to complete the national network of RNA's. Biotic, aquatic, and geologic types needed for the network will be identified using a list provided by the Chief, Forest Service. Authority to establish RNA's is delegated to the Chief in § 2.60(a) of Title 7 and in § 251.23. The plan will recommend establishment of areas. Guidance for the selection of areas suitable for RNA's and for the preparation of establishment reports is provided in section 4063, Forest Service Manual.

§ 219.13 Management standards and guidelines.

(a) Management of National Forest System lands requires adherence to the planning principles stated in § 219.1. specific management requirements to be met in accomplishing goals and objectives include, as a minimum, those in paragraphs (b) through (i) of this section.

(b) All management practices will:

(1) Conserve soil and water resources, and not allow significant or permanent impairment of the productivity of the land;

(2) Minimize serious or long-lasting hazards from flood, wind, wildfire, erosion, or other natural physical forces,

except as these are specifically accepted, as in Wilderness;

(3) Prevent or reduce serious, long-lasting hazards from pest organisms under the principles of integrated pest management;

(4) Protect streams, streambanks, shorelines, lakes, wetlands, and other bodies of water as provided under paragraphs (e) and (f) of this section;

(5) Provide for and maintain diversity of plant and animal communities to meet overall multiple-use objectives, including, where appropriate and to the degree practicable, management practices to preserve endemic and desirable naturalized plant and animal species similar to those existing in the planning area;

(6) Be monitored and evaluated as required in § 219.5(k) to assure that practices preserve critical soil, watershed, fish, wildlife, recreation, and aesthetic values; maintain vegetative productivity; and reduce hazards from insects, disease, weed species, and fire;

(7) Prior to project implementation, the potential physical, biological, aesthetic, cultural, engineering, and economic impacts, will be assessed in addition to the consistency of the project with the multiple uses planned for the general area;

(8) Ensure that fish and wildlife habitats are managed to maintain viable populations of all existing native vertebrate species and to improve habitat of selected species, coordinated with appropriate State fish and wildlife agencies and monitored in cooperation with these agencies, to the extent practicable;

(9) Include measures for preventing the destruction or adverse modification of critical habitat for threatened and endangered species;

(10) Provide that any existing transportation and utility corridor, and any right-of-way that is capable of accommodating the facility or use from an additional compatible right-of-way, be designated as a right-of-way corridor. Subsequent right-of-way grants shall, to the extent practicable, and as determined by the authorized official, be confined to designated corridors;

(11) Ensure that any roads constructed through contracts, permits, or leases are designed according to standards appropriate to the planned uses, considering safety, cost of transportation, and effects upon lands and resources;

(12) Provide that all roads are planned and designed to re-establish vegatative cover on the total disturbed area within a reasonable period of time, not to exceed 10 years after the termination of a contract, lease or permit, unless the road is determined necessary as a permanent addition to the National Forest Transportation System; and

(13) Maintain air quality at a level that is adequate for the protection and use of National Forest System resources and that meets or exceeds applicable Federal, State and/or local standards or regulations, as required by the guidelines in Chapter 2120, Forest Service Manual.

(c) Management practices that involve vegetation manipulation of tree cover for any purpose will:

(1) Be best suited to the multiple-use goals established for the area with all potential environmental, biological, cultural resource, aesthetic, engineering, and economic impacts, as stated in the regional and forest plans, being considered in this determination;

(2) Assure that lands can be adequately restocked within 5 years after final harvest as provided in paragraph (h)(3) of this section, except where permanent openings are created for wildlife habitat improvement, vistas, recreation uses and similar practices;

(3) Not be chosen primarily because it will give the greatest dollar return or the greatest output of timber, although these factors shall be considered, with long-term costs and benefits rather than immediate or short-term returns being used in economic analysis;

(4) Be chosen after considering potential effects on residual trees and adjacent stands;

(5) Avoid permanent impairment of site productivity and assure conservation of soil and water resources;

(6) Provide the desired effects on water quantity and quality, wildlife and fish habitat, regeneration of desired tree species, recreation uses, aesthetic values, and resource yields; and

(7) Be practical in terms of transportation and harvesting requirements, and total costs of preparation, logging, and administration.

(d) When tree openings are created by the application of even-aged management, the provisions of paragraphs (d)(1) and (2) of this section apply.

(1) The blocks or strips cut shall be shaped and blended with the natural terrain to achive aesthetic and wildlife habitat objectives to the extent practicable. Openings will be located to achieve the desired combination of multiple objectives. Regional plans will provide guidance on the dispersion of openings, and size variations of openings, in relation to topography, climate, geography, local land use patterns, forest type and other factors. The regional plan will specify the state of vegetation to be reached before a cutover is no longer considered an opening.

(2) Individual cut blocks, patches, or strips will conform to the maximum size limits for areas to be cut in one harvest operation established by the regional plan according to geographic areas and forest types. This limit may be less than, but shall not exceed, 60 acres for the Douglas-fir forest type of California, Oregon, and Washington; 100 acres for the hemlock-sitka spruce forest type of coastal Alaska; and 40 acres for all other forest types except as provided in paragraphs (d)(2) (i) through (iii) of this section:

(i) Cut openings larger than those specified may be permitted where larger units will produce a more desirable combination of benefits. Such exceptions will be provided for in regional plans. The following factors will be considered in determining size limits by geographic areas and forest types: Topography; relationship of units to other natural or man-made openings and proximity of units; coordination and consistency with adjacent forests and regions; effect on water quality and quantity; effect on scenic values; effects on wildlife and fish habitat; regeneration requirements for desirable tree species based upon the latest research findings; transportation and harvesting system requirements; natural and biological hazards to survival of residual trees and surrounding stands; and relative total costs of preparation, logging, and administration of harvest cuts of various sizes. Specifications for such exception will include the particular conditions under which the larger size is permitted and set a new maximum size permitted under those conditions.

(ii) The size limits may be exceeded on an individual timber sale basis after 60 days public notice and review by the regional forester.

(iii) The established limit shall not apply to the size of areas harvested as a result of natural catastrophic condition such as fire, insect and disease attack, or windstorm.

(e) Special attention shall be given to land and vegetation for approximately 100 feet along both sides of all perennial streams, lakes, and other bodies of water. No management practices will be permitted which seriously and adversely affect water conditions or fish habitat. Such changes include increases in water temperatures or chemical composition, blockages or water course, or deposits of sediment that are likely to seriously

and adversely affect water conditions or fish habitat. Topography, vegetation type, soil, climatic conditions, management objectives, and other factors will be considered in determining what management practices may be performed within these areas and the constraints to be placed upon their performance in order to assure protection of water condition, fish habitat or other multiple-use values.

(f) Conservation of soil and water resources involves the analysis, protection, enhancement, treatment, and evaluation of soil and water resources, and their responses under management and will be guided by instructions in official technical handbooks. These handbooks must show specific ways to avoid or mitigate damage, and maintain or enhance productivity on specific sites. These handbooks may be regional in scope or, where feasible, specific to physiographic or climatic provinces.

(g) Diversity of plant and animal species and communities will be considered throughout the planning process. Inventories will include quantitative data making possible the evaluation of species and community diversity in terms of its prior and present condition. for each planning alternative, the interdisciplinary team will consider how diversity of species and communities will be preserved and enhanced by various mixes of resource outputs and uses, including the effects of proposed management practices on existing plant and animal species and communities in the planning area. The selected alternative will provide for plant and animal community diversity to meet the overall multiple-use objectives of the planning area. To the extent consistent with the requirement to provide for diversity, management practices, where appropriate and to the extent practicable, will preserve and enhance species and communities diversity similar to that which would be expected in an unmanaged part of the planning area. Reductions in existing plant and animal community diversity will be made only where needed to meet overall multiple-use management objectives. Planned type conversions of the species will be justified by a detailed analysis showing biological, economic, and social consequences, and the relation of such conversions to the process of natural change.

(h) The management requirements in paragraph (h) (1) through (7) of this section apply to timber harvest and cultural treatments.

(1) No timber harvesting shall occur during the planning period on lands classified as not suited for timber production pursuant to § 219.12(b) (1) through (5) except as necessary to protect other multiple-use values or activities that meet other objectives on such lands if the forest plan establishes that such actions are appropriate.

(2) The selected harvest schedule provides the allowable sale quantity, the quantity of timber that may be sold from the area of land covered by the forest plan during the planning period. Within the planning period, the volume of timber to be sold in any one year may exceed the average annual allowable sale quantity so long as the total amount sold for the planning period does not exceed the allowable sale quantity. Nothing in this standard shall prohibit salvage or sanitation harvesting of timber stands which are substantially damaged by fire, windthrow, or other catastrophe, or which are in imminent danger of insect or disease attack where consistent with silvicultural and environmental standards. Such timber may either substitute for timber that would otherwise be sold under the plan or, if not feasible, be sold over and above the planned volume.

(3) When trees are cut to achieve multiple-use objectives, including timber production, the cuttings will be made in such a way as to assure that lands can be adequately restocked within 5 years after final harvest. Research and experience will indicate that the harvest and regeneration practices planned can be expected to result in adequate restocking. Adequate restocking means that the cut area will contain the minimum number, size distribution, and species composition of regeneration as specified in regional silvicultural guides attached to the forest plan for each forest type. Five years after final harvest means 5 years after clearcutting, 5 years after final overstory removal in shelterwood cutting, 5 years after the seed tree removal cut in seed tree cutting, or 5 years after selection cutting.

(4) Cultural treatments such as thinning, weeding, and other partial cutting may be included in the forest plan where they are intended to increase the rate of growth of remaining trees, favor commercially valuable tree species, favor species or age classes which are most valuable for wildlife, or achieve other multiple-use objectives.

(5) Harvest levels based on intensified management practices will be decreased no later than the end of each planning period if such practices cannot be completed substantially as planned.

(6) Timber harvest cuts designed to regenerate an even-aged stand of timber will be carried out in a manner consistent with the protection of soil, watershed, fish and wildlife, recreation, and aesthetic resources, and the regeneration of the timber resource.

(7) Timber shall not be harvested where such treatment would favor an abnormal increase in injurious insects and disease organisms.

(i) Monitoring will ensure as a minimum that:

(1) Lands are adequately restocked within 5 years after the final harvest cut;

(2) Lands identified as not suited for timber production will be examined every 10 years to determine if they have become suitable;

(3) Maximum size limits for harvest areas are evaluated to determine whether such size limits should be continued; and

(4) Destructive insects and disease organisms do not increase following management activities.

§ 219.14 Research.

(a) Research needs for management of the National Forest System will be identified during planning and continually reviewed during evaluation of implemented plans. Particular attention will be given to research needs identified during the monitoring and evaluation described in § 219.5(k). These identified needs will be included in formulating overall programs, which involve private as well as public forest and rangelands.

(b) Priorities for research needed for management of the National Forest System will be established and budgeted at the research station and national levels. Priorities will be based upon the information gathered at all planning levels of the National Forest System.

(c) An annual report at the national level will include, but not be limited to, a description of the status of major research programs which address these needs, significant findings, and how this information is to be applied in National Forest System management.

§ 219.15 Revision of regulations.

The regulations in this subpart shall be regularly reviewed and, when appropriate, revised. The first such review shall be completed no later than 6 years after the approval date of these regulations. Additional reviews shall occur at least every 5 years thereafter.

§ 219.16 Transition period.

(a) Until a forest planning area of the National Forest System land is managed under a forest plan developed pursuant to these regulations and approved by the regional forester, the land may continue to be managed under existing

land use and resource plans. As soon as practicable, existing plans will be amended or revised to incorporate standards and guidelines in this subpart. Pending approval of a forest plan, existing plans may be amended or revised to include management requirements not inconsistent with the provisions of the Forest and Rangeland Renewable Resources Planning Act, as amended, and these regulations.

(b) A forest plan may become effective prior to the development and approval of its related regional plan, provided that the forest plan will be reviewed upon regional plan approval, and if necessary, amended to comply with regional management direction. If such an amendment is significant, it will be made pursuant to the requirements for the development of a forest plan.

Final Report of the Committee of Scientists

February 22, 1979

A Report of the Committee of Scientists to the Secretary of Agriculture Regarding Regulations Proposed by the United States Forest Service to Implement Section 6 of the National Forest Management Act of 1976.

For the Committee of Scientists.

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Executive Summary

This report presents the Committee of Scientists' evaluation of the draft regulations for implementing section 6 and related sections of the National Forest Management Act of 1976. It consists of a discussion of broad issues, a section-by-section analysis of the draft regulations, and a set of proposed regulations.

Our review leads to the following general conclusions:

(1) In spite of some deficiencies, the draft regulations are a major step forward in Forest Service policy. A single plan for each National Forest, rather than functional plans for each resource and unit plans, and the proposed vertical integration of the RPA planning process are far-reaching changes.

(2) Many of the criticisms that have been leveled at the draft regulations have arisen from an incomplete reading of them. The regulations must be read in their entirety to be understood. We recommend more extensive cross-referencing to alleviate this problem.

(3) The regulations have been criticized as being too process oriented. We believe the legislative history of NFMA supports the fact that they should be process oriented. We recommend further clarification and definition of the planning process.

(4) The degree of specificity of the draft regulations has been hotly debated. We conclude that the regulations do lack specificity in many key areas. We recommend that they be specific in establishing the principles of land management planning and the process to be used in applying these principles. We recommend, however, that the regulations not be specific with regard to prescriptions for on-the-ground management problems.

(5) Interdisciplinarity was a key concern of Congress and the language of the NFMA requires that a process to insure interdisciplinarity must be embodied in the planning regulations. We recommend more specific language

on three issues: (1) A description of the interdisciplinary process, (2) the philosophy that is to guide the interdisciplinary team, and (3) the requirements for composition of the team and for qualifications of its members. We have been told that other legislation may prevent persons who are not Forest Service employees from being appointed to interdisciplinary teams. We propose a strategy to allow State personnel to work with teams if it proves impossible for them to serve as members of them.

(6) The proposed planning process to insure interdisciplinary planning as described in §§219.8, 219.9, and 219.10 is sound. This is evident when the sections are read as three parts of the whole. However, we propose changes in the draft regulations in several areas: clarification of the role of public participation; strengthening of the inventory requirements to assure adequate information for RPA planning and to insure ties to monitoring; clearer statement of planning objectives; more explicit evaluation criteria; clarification of the role of economic analysis and the requirements for treating diversity; and strengthening of the section outlining standards for formulating alternatives.

(7) We believe the regulations should contain statements of the Secretary of Agriculture's policy in certain key areas and we recommend such language in appropriate sections.

(8) Ongoing activities such as proposed Congressional allocations of wilderness and the RARE II process are contradictions and are counterproductive to RPA planning, goals, and processes. Congress, the administration, and the Forest Service must allow the process to run through at least one full iteration to demonstrate its potential and to establish its credibility.

(9) Citizens have expressed concern that prior regulations often did not make clear who was responsible for given actions. We find the present draft regulations adequate and definite in this regard.

(10) The proposed three-tiered planning concept involving national, regional, and forest planning is sound. The regional plan, an addition proposed by the Forest Service to the two levels required by RPA/NFMA, serves as a critical link between national and local planning. The draft regulations do not adequately convey the important iterative nature of the three levels of planning or the critical importance of the regional plan. We recommend clarifying and strengthening the description of the national and forest plan and their interactions and propose a new section dealing with the regional plan. We concur with the Forest Service proposal that many controversial management practices such as size of clearcuts, standards for biological growth potential, and silvicultural systems, be governed by the standards set in regional plans.

(11) The vital need for upward and downward flows of information in RPA/NFMA planning is implicit in the draft regulations but not clearly stated. It must be made clear that the goals and objectives of RPA planning are synthesized from upward flow of capabilities and demands at the local level.

The draft regulations deal with a number of important issues in forest planning and management. Among the most complex and controversial of these are: lands suitable for timber production, timber harvest scheduling and departures from nondeclining yield, silvicultural standards, diversity, wilderness, and coordination of public planning efforts. Our analyses and recommendations with regard to those are:

(12) The draft regulations provide a five step process for identifying lands not suited for timber production. We think this is not adequate, and we propose a different process with the following steps:

—Lands are screened to determine whether they are available (i.e., not already designated for other uses) for timber production;

—Available lands are then screened to identify areas that are not suitable for timber production because of physical, technical, biological (including a minimum productivity standard), or environmental factors;

—Lands passing these tests are then subjected to economic analysis and ranked to determine their relative economic efficiency for commercial timber production; and

—Alternative land management plans are formulated and lands are allocated to timber harvest on a cost-effective basis. An iterative procedure allows adjustment and revision on the basis of multiple-use considerations.

(13) Analysis of provisions of sections 6 and 13 of NFMA as they relate to timber harvest schedules and provisions for departure leads to the following three recommendations. First, implementation of sections 6 and 13 should be integrated because the intent of NFMA is that timber harvest schedules, including ceilings and departures, be integrated with planning for all resources. Second, section 13 of NFMA should be implemented by (a) stipulating that in the case of a base timber harvest schedule, the planned sale and harvest for any future decade must be equal to or greater than that in the previous decade, provided that the long run sustained yield ceiling is not exceeded and (b) by requiring that departures from the base harvest schedule be examined and evaluated during the planning process when certain conditions exist, subject to the constraint that the long run sustained yield capacity can be achieved at the end of the planning period. Third, determination of timber harvest schedule should be an integral part of the resource planning process and not an appendage to it. We recommend, however, that clarifying language be adopted which would emphasize the fact that consideration of departures is discretionary and that, if an upward departure is proposed, final approval for it should lie with the Chief, Forest Service.

(14) The proposed regulations have been criticized as not specific enough with respect to silvicultural standards and as not clarifying the fact that resource protection standards should apply equally to all uses and resources. The structure of proposed § 219.10 seems to imply that each resource is to be treated without consideration of others. We recommend cross-referencing of § 219.10 with the section on interdisciplinarity. More importantly, we recommend inclusion of a new subsection at the beginning of § 219.10. This subsection provides:

—Standards that all management activities must meet;

—Standards more detailed than those of the draft regulations that must be met when silvicultural systems are chosen;

—Standards that must be met when openings are created by cutting, including the size of clearcuts. We recommend that no national size limit on clearcuts be established but that this be done at the regional level for geographic areas and forest types;

—Standards for protection of streams, including designation of a 30-meter strip on either size of all perennial water bodies to receive special consideration in planning and monitoring;

—Special consideration for the conservation of soil and water resources (p. 107); and

—Specific direction for consideration of diversity generally and type conversions specifically.

As a result of these changes, the section on silvicultural systems should embody controls on timber cutting only.

(15) Provision for "diversity" as required by NFMA is one of the most

perplexing issues dealt with in the draft regulations. We believe it is impossible to write specific regulations to "provide for" diversity. We believe the interdisciplinary team should treat diversity as a major concern throughout the planning process and any changes in diversity should be identified and justified. Diversity is dealt with in several places in the regulations (219.9(c), (e), (f), 219.10(a), (b) and (d)) and we discuss the implications of these requirements in our report. We recommend clarifying and strengthening language in a number of places.

(16) The NFMA provides little guidance as to planning for the wilderness resource. The draft regulations treat, but do not fully resolve, two difficult issues: (1) Identifying and appraising additional candidate areas and (2) establishing maximum allowable levels of use. We recommend clarifying language to address both. Key provisions include: (1) evaluation of the wilderness resource and management planning for it in forest plans; (2) all potentially eligible lands should be considered at each revision of the forest plan; (3) costs and benefits should be weighed in considering wilderness status as with other resources; (4) criteria for designation should be evaluated continuously as experience dictates; and (5) determination of "carrying capacity" should be made for each area.

(17) Coordination among Federal, State and local governments is particularly poor in land use planning and management. We conclude that the requirements in the draft regulations for coordination are inadequate. We propose substitute language to assure that other governmental units understand how they can be involved in Forest Service planning, that the Forest Service make real efforts at coordination, and that Forest Service planners will evaluate and consider the plans of other governmental units as they develop regional and forest plans.

Other issues, although not so hotly debated, are nonetheless important and their resolution is critical to the success of the RPA/NFMA planning process. These include: public participation, adequacy of inventories, standards for resources other than timber and wilderness, economic analysis, monitoring, research, and consideration of mineral and visual resources. With regard to these matters, we conclude and recommend:

(18) Although the proposed regulations offer a good general framework for public participation, we feel they lack specificity and we propose additional language.

(19) Each forest plan should be based on sound detailed inventories of soils, vegetation, water resources, and wildlife and the other resources to be managed. Too often, such data are scanty or lacking. Another problem is lack of compatibility of data from comparable or even adjoining regions. As with monitoring, existing budgets are inadequate to rectify these deficiencies, and adequate budgets should be earmarked for these purposes.

(20) The guidance provided in the sections relating to resources other than timber (219.10(a), (b), (c) and (e)) is frequently limited and dwarfed by the detail provided for timber. This is an inevitable outcome of NFMA and its legislative history. The draft material on fish and wildlife (219.10(a)) appears to have general acceptance. We recommend several changes, the most important of which is substitution of the term "management indicator species" for "selected species". We recommend new, rewritten language for the sections on range (219.10(b)) and recreation (219.10(c)) which we think will insure more adequate treatment of these resources. The water and soil resources section (219.10(e)) should be titled "Water resource"; soil is treated adequately elsewhere.

(21) Competent economic analysis at all appropriate places in the planning process was clearly directed by RPA/NFMA. We propose language to provide additional guidance in evaluating management options.

(22) Any evaluation process demands some level of systematic inspection and measurement (i.e., monitoring). Special administrative and budgetary attention must be devoted to this activity.

(23) The resolution of research issues in forest management will depend on findings of numerous scientists in the Forest Service, universities, and the private sector. More effective coordination among all such research efforts, and between research results and planning operations in the National Forest System, is needed. The present level of coordination does not appear to be adequate. In addition, research needs identified by the planning process should be communicated speedly to appropriate research units.

(24) The draft regulations provide no real direction for consideration of mineral resources in the land allocation process. We recommend that a section providing such direction, appropriately cross-referenced to Forest Service and other agency regulations, be added to § 219.10. Furthermore, there is no treatment of visual resources in the draft. The Forest Service manual currently contains direction for consideration of esthetic values and we recommend that this serve as the basis for general guidance to be inserted in our new § 219.10(a) in the final regulations.

Finally, reflections on the draft regulations and our experience in evaluating them leads us to certain conclusions and recommendations:

(25) The planning process that will follow the approval of regulations will produce a vast amount of new practical experience which may point to areas for improvement. We recommend formal provisions for continued evaluation and revision of the regulations.

(26) Planning is costly. Additional costs will be measured in inventory, monitoring, and research requirements to implements to implement planning and to insure protection of all resources. We believe the estimates of planning costs by USADA are grossly conservative. If this RPA planning process is to work, it must be funded at a realistic level.

(27) Interdisciplinary planning and management require an adequate pool of resource specialists from various disciplines. Selective hiring, retraining, or appropriate arrangements with other agencies and private institutions may be required to provide sufficient numbers of such specialists without disrupting other programs.

(28) Successful implementation of the RPA/NFMA process depends on the prompt development of a set of final regulations and on support of them through at least one complete iteration of the process, by all constituencies with interest in the National Forests. We appeal to all for a constructive period of dialogue, common effort, and cooperation so that the process may succeed.

Introduction

In our preliminary report accompanying draft regulations for implementing Section 6 of the National Forest Management Act, as amended [1], we stated that the report containing our technical review of the draft regulations, prepared as required by law for the Secretary of Agriculture, would be published so that the public might be informed of the committee's views. The following report contains our views and fulfills our obligations under section (h) of RPA/NFMA.

[1] The Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA) (88 Stat. 476, *et seq.*), as amended by the National Forest Management Act of 1976 (NFMA) (90 Stat. 2949, *et seq.*), hereafter referred to as RPA/NFMA.

Although the background of the committee's formation and responsibility was described in the preliminary report, a brief synopsis may be helpful. The committee is composed of seven members and is authorized by section 6(h)(1) of RPA/NFMA. Although the statutory charge to the committee is to "provide scientific and technical advice and counsel on proposed guidelines and procedures to assure that an effective interdisciplinary approach is proposed and adopted," the peculiar structure of the RPA/NFMA required the committee to consider all aspects of section 6 and, in addition, other section, particularly section 13, dealing with limitations on timber removal. The National Academy of Science, in a report to the Secretary of Agriculture, recommended that "The committee deliberations should embrace all parts of section 6 of the Act," and the charge to the committee from the Secretary included this broader mandate.

Our work took place in two phases. In the first, we worked with Forest Service staff in preparing language to be considered for incorporation in the draft regulations. Although such active involvement was perhaps not envisioned by Congress when it authorized the committee, it turned out to be the only practical way for us to operate. Meetings during this first phase were held throughout the country and were fully open to the public. Concerns of two major types were discussed. These involved the planning process itself and a number of critical issues that became fairly obvious on the basis of Congressional and other public debate over management of the National Forests. The first phase culminated in publication of the draft regulations on August 31, 1978.

In the second phase of our work we evaluated the draft regulations and prepared this report. This work required additional public meetings and intensive discussions of several unresolved issues identified for special study in a letter to the committee from the Assistant Secretary of Agriculture. These included: lands suitable for timber production, departures from non-declining yield, silvicultural standards, diversity, wilderness, and coordination of public planning efforts. In addition, discussion was devoted to a number of less controversial issues which are, nonetheless, critical to successful implementation of the Forest Service Planning process. These included: public participation, the relationships among plans at the forest, regional, and national level, and the need for more clearly defined standards to guide planning for resources other than timber.

Evaluating the regulations has proven difficult. Although the draft regulations may seem to have certain obvious deficiencies, many of the technical issues inherent in them are not amenable to straightforward technical or scientific solution. In fact, there are instances where the best scientific solution is inconsistent with Congressional direction.

In evaluating regulations related to planning, our standards were technical soundness of the process and the clarity with which it is explained. First of all, the process proposed had to be one that would work or could be made to work. Second, the explanation of the process in the regulations had to be sufficiently clear so that intelligent private citizens, whose interests might be affected by management of the National Forests, could understand it. The standard used was that for journalistic adequacy: who, what, when, how and where. The regulations must explain who is responsible for planning, what is to be done, and when, how and where it is to be done.

The standards for judging proposed technical solutions to major issue areas are more difficult to articulate. In many of these areas, there is no consensus on the nature of the technical standards to be involved and the degree of specificity that is desirable. Honest, competent professionals simply disagree and there may be, therefore, more than one technically acceptable solution. In such cases, we have identified either what we consider to be the most acceptable solution or what appear to be a reasonable range of alternatives with their reasonably predictable consequences.

Our discussions, analyses, and sources of information can be found in the minutes of our meeting. These are available at the Library of Congress and the Forest Service Washington office and regional offices.

In the last analysis, of course, our report represents our best judgment on the difficult issues inherent in National Forest planning.

We acknowledge the assistance of a number of persons who have worked with us and attended our meetings. First, we acknowledge the excellent presentations on several subjects made by invited consultants. These expositions helped bring several complex issues, including timber harvest scheduling and wilderness, into clearer focus. Their presentations are in the minutes of our meetings. We also thank the members of interest groups and of the general public who attended our meetings. This regular public participation brought a valuable dimension to our work. The representatives of interest groups were particularly helpful in casting up altenative views of complex issues. In fact, alternative language presented to us in this way has, in several cases, been used in recommended changes. We are indebted especially to the Silviculture Task Force appointed by the Forest Service in the fall of 1978. Its report helped us analyze the difficult matter of silvicultural standards and served as the basis for much of our text on that subject. We also thank all other Forest Service staff members who worked with us. Finally, we must express our deep personal thanks to Messrs. C. Rex Hartgraves, Donald L. Funking, and John W. Russell and Mrs. Joyce Parker, for their dedicated efforts. Although we frequently disagreed, we were always able to work together constructively. If the Forest Service can bring the same dedication to implementing these regulations that these persons brought to writing them, we are sure the outcome will be positive.

Organization of Report

Because of the length of this report, the complexity of the issues with which it deals, and the variable intensity of public attitudes toward these issues, a word about its organization is appropriate.

After the introductory material, the report is organized into three parts. The first deals with some of the broader, philosophical questions implicit in the regulations. Our views on these questions are important because they indicate the philosophical basis for evaluation of the draft regulations. Many questions, of course, relate to more than one section of the regulations, and appropriate cross-referencing is provided. The second part is a section-by-section analysis of the draft regulations. Here the report analyzes each issue considered in conjunction with each section of the regulations. Some of these issues are of major importance and public concern, and they were discussed intensively. The key issues are: silvicultural standards, identification of lands suitable for timber production, timber harvest scheduling and departures from non-declining yield, and coordination of intergovernmental planning. Other significant issues involve vertical intergration of the RPA planning effort, the content and role of the regional plan.

public participation, and the work of the interdisciplinary team.

As a result of our analysis of the proposed regulations, we have recommended insertion of new material that will necessitate changes in the numbering of certain sections. For the sake of clarity, the section numbers referred to in the text are those found in the Proposed Rules published in the Federal Register on August 31, 1978. Where changes recommended by the committee necessitate a change in section numbering in proposed regulation language, reference to our revised language is indicated, for example, by *'219.10(a)(6)'*.

The following table summarizes the main sections of the published version and of our version:

Published version		Committee version		Page
219.1	Purpose	Same		39
219.2	Scope and Applicability	Same		40
219.3	Definitions	Same		40
219.4	Planning Levels	Same		44
219.5	Interdisciplinary Approach	Same		51
219.6	Public Participation	Same		58
219.7	Coordination of Public Planning Efforts			69
		219.8	Regional Planning	46
219.8	Forest Planning Procedure	219.9	Forest Planning Procedure	62
219.9	Forest Planning Process	219.10	Forest Planning Process	63
219.10	Resource Management Standards and Guidelines	219.11	Resource Management Standards and Guidelines.	85
219.11	Research	219.12	Research	155
		219.13	Revision of Regulations	160
219.12	Transition Period	219.14	Transition Period	160

The final section is a full draft of the regulations as they will appear with changes recommended by the committee of scientists.

The Broader Issues

A number of broad, philosophical issues permeate the regulations and the process by which they were drafted. Some of these were apparent to the committee when it began its work, others became apparent during the drafting work, and others are apparent only in retrospect. Because our perseptions of these issues influenced the way we evaluated the draft regulations, it is important for the serious student of the regulations to be aware of them. Although others need not accept our views, we hope that our arguments are persuasive.

The Regulations Must Be Read In Their Entirety To Be Understood

The draft regulations are a long and complex document that must be read in their entirety to be understood. They lay out a planning process into which a number of technical standards are incorporated. One cannot understand how a resource such as timber is treated, for example, by reading the section on timber alone. The reader must first understand the planning process, then the technical standards pertaining to the timber resource, and finally the way in which standards fit into planning generally. The process proposed is an integrated one and the regulations themselves are integrated.

Unfortunately, it is clear that many reviewers of the regulations have not read them in their entirety. If they had, they would have found that their concerns were adequately treated. We have proposed additional continuity and cross-referencing in our proposed revisions. Even these changes will not help if issues are treated out of context. Therefore, we urge the reader to consider the regulations in their entirety before forming an opinion on them.

The Draft Regulations Must Be Placed In Proper Perspective

The draft regulations must be put into their proper perspective to be understood. Although the regulations have been roundly attacked by virtually everyone who has read them, the majority of these critics fail to acknowledge that, despite inadequacies, the regulations represent a major step forward for the Forest Service. For the first time the agency has attempted to put down on paper for all the public to see the procedures by which it will conduct its land management planning. For an agency that has traditionally resisted putting such direction outside of its manual, this represents a major change in policy. Furthermore, we regard the draft as an honest effort by the Forest Service to meet the mandates of Congress as expressed in RPA/NFMA. Apparent failure to meet these mandates at all points is due both to lack of clarity or certain purpose in the law and to the technical difficulties of developing such sweeping regulations.

The regulations also represent an important advance on several other counts. First, they require that, except as required by other statutes, the functional planning for individual resources and uses that has been so characteristic of Forest Service planning in the past be integrated into a single plan. The process "is intended to integrate all functional resource planning and thereby improve upon previous planning methods." The previously used unit planning procedures are no longer used; instead, the product is a comprehensive and integrated blueprint for the management of an entire National Forest. In our judgment the process embodied in the draft is conceptually sound and is capable of implementation if adequate resources are provided. Finally, the regulations establish a system of vertical integration for the RPA planning effort. These changes are far-reaching. If they are improved in the final regulations, activated by the Forest Service, and adequately funded, they bode well for the quality of the agency's future planning efforts.

Having complimented the Forest Service on the draft regulations, we are compelled to say that the draft is deficient on several counts. A number of the proposed procedures may not fully meet the intent of Congress or are less than adequate. We will document these deficiencies in our report and propose wording to resolve them. At the same time we urge the Forest Service's critics to recognize the far-reaching advances in this draft. The draft regulations go much more than halfway toward resolving most of the problems Congress addressed in NFMA.

The Regulations Are Process Oriented and This Is Appropriate

One of the two most persistent criticisms of the draft regulations is that they are too "process oriented." We consider this criticism to be invalid,—somewhat akin criticizing a skunk for smelling bad. A skunk is a skunk and planning is, by its very nature, process oriented.

In fact, the legislative history of RPA/NFMA clearly bears out that Congress deliberately chose a planning process, rather than prescriptive guidelines, as the preferred method of dealing with the complex issues confronting the National Forest system. This was the choice inherent in the debate between the Randolph and Humphrey bills in the Senate and the conference committee ultimately had to rationalize two bills, both of which placed heavy emphasis on

planning. RPA/NFMA is planning legislation. It stresses the interdisciplinary nature of the planning approach (section 6(b)) and requires that the Secretary promulgate regulations that "* * * set out the process for the development and revision of the land management plans * * *" (section 6(g)).

Clarity in expressing the requirements of planning is important on another count. Congress went to considerable lengths to make clear that all future Forest Service planning was to be open and accompanied by significant opportunities for public participation. For public participation to be effective, the public and interest groups must understand clearly what is being done, by whom, and in what order. Therefore, the regulations governing planning must be clear and explicit. Otherwise, public participation may be frustrated and the planning process embroiled in procedural controversy.

Consequently, we support the process oienfed nature of the regulations and, in fact, recommend changes to clarify and make more explicit the planning requirements.

The Draft Regulations Lack Specificity In a Number of Critioal Areas

The other most persistent criticism is that the draft regulations are not specific enough. The degree to which regulations should prescribe actions and procedures, as opposed to providing general policy guidance, has pervaded our discussions. This issue was also hotly debated in Congress.

Some observers argue that Congress intended that many specifics not included in the Act itself should be included in the implementing regulations. Others contend that the specifics should be included in the Forest Service Manual, not in these regulations. From either point of view, the issue is: How specific can the regulations be expected to be? How definitive should the guidance to the Forest Service planners, and the public, be?

There is no simple answer to these questions. After considerable study we have concluded that the regulations must be quite specific in one respect, and quite non-specific in another. We believe that the regulations must be specific in establishing the principles of land management planning and in establishing the process to be used by the Forest Service in applying those principles. We are equally strong in our belief that the regulations should not be specific in regard to the prescriptions for the solution of on-the-ground land management problems such as choice of silvicultural system or maximum size of harvest operations in a single block. We believe that when an exacting set of policy statements is adopted and a rigourous planning procedure is used, the most desirable solution to specific problems will be discovered by the interdisciplinary team, presented to the Forest Supervisor, and approved by the Regional Forester.

The majority of the proposals in the report provide more specificity on the principles of land management planning and on the planning process to be used. These proposals are intended primarily to provide specific guidance to Forest Service officers on policy and the planning process. Equally important, they will make it clearer to the interested public what the Forest Service must do to identify the critical areas of concern, the policies which are established, and the procedures to be followed in resolving the critical issues.

The Structure of the Proposed Forest Planning Process is Sound

A major requirement of RPA/NFMA is that the Forest Service adopt an interdisciplinary process (section 6(b)) to govern future planning for management of units of the National Forest system. It is important that the process proposed be workable and that responsibilities for its execution be clearly described. Although the regulations could be structured in a variety of ways in order to achieve these goals, we are satisfied that the principles inherent in §§ 219.8, 219.9, and 219.10 as they are now conceived are compatible with, and conducive to, the interdisciplinary planning envisioned by Congress.

A great deal of effort and thought both on the part of the Forest Service and the committee, went into developing an appropriate structure for the rules to guide forest planning. Initially, consideration was given to a section that would integrate the planning requirements and processes with resource standards and guidelines. It was felt that such an organization would emphasize the integrated nature of the planning and management called for by RPA/NFMA on the National Forests. The proposed language that emerged from these attempts seemed to us to be too long to be grasped readily and so complex that it obscured the basic intent of the section. A better alternative, therefore, was separate sections, one describing planning procedures, one enumerating the planning process, and a third containing the basic standards and guidelines for planning and managing individual resources. This concept is reflected by §§ 219.8, 219.9, and 219.10 of the draft regulations.

We are aware that this treatment seems to have the effect of isolating procedures from process and treatment of all resources from the planning process itself. Although a number of reviewers have pointed out this potential weakness, we consider it more apparent than real. If §§ 219.8, 219.9, and 219.10 are treatd as three parts of an integrated process, as intended, then the unity of the process should be evident.

The regulations Should State the Secretary of Agriculture's Policy in a Number of critical Areas

Early in our deliberations we saw a need for inclusion in the regulations of broad general statements of principle in many areas. The RPA/NFMA does provide some policy principles which were established by the Congress. However, the act itself and its legislative history indicate that Congress left the formulation and clarification of many of these principles to the Secretary of Agriculture.

We spent considerable time discussing and drafting statements of principle which were included in the earlier drafts of the regulations. We were cautioned by the representatives of the Office of General Counsel that such general principles were often subject to varying interpretations, and thus could become the targets for legal actions.

We acknowledge this difficulty, but continue to support the idea of including Secretarial statements of intent on policy matters. For exemple, it is our belief that a general statement on the purpose of an interdisciplinary approach is desirable. We do not believe that such a general policy statement would be more vulnerable to litigation than any of the specific guidelines laid down in direct response to a Congressional mandate.

Policy guidance is also important because of the unique nature of these regulations. Typical government agency regulations are designed to explain how the public is to be regulated by the agency. The RPA/NFMA regulations are different because they explain to the public how the Forest Service will govern *itself* with regard to its planning practices, and the limits that will be placed on certain management practices by the agency itself. In light of this peculiarity, it is vary important that the policies that the Forest Service evolves to govern its planning and subsequent management of the National Forests be available to the public in clearly understandable form. This fact further

emphasizes the need for specific wording in the regulations. The general standard that can be established is that the public must know the policies that guide Forest Service actions and it must know *who* is going to do *what* and *how* in implementing policies.

We are unanimous, therefore, in our feeling that the regulations as now drafted would be much more helpful to the Forest Service and the public if they contained general policy guidance from the Secretary of Agriculture to supplement, clairfy, and extend the policies established by Congress in RPA/NFMA. We propose such general policy guidance at appropriate places in this report. These statements generally form the lead-in language to the sections of the regulations dealing with major issue areas.

The RPA/NFMA Planning Process Can Resolve Many Problems Inherent in Management of the National Forests and Deserves the Chance To Work

From the very beginning of our work, we have been convinced that the planning process established in RPA/NFMA is sound in concept, workable, and also capable of resolving many of the present controversies over management of the National Forests.

Unfortunately, there are now a number of on-going or proposed activities that are inconsistent with the RPA planning process. The most obvious of these are Congressional proposals to allocate wilderness and the Forest Service's RARE II wilderness planning exercise. We recognize that these activities began well before regulations for implementing NFMA were developed. We further recognize that both are political responses to a terrible land allocation dilemma. Despite this, we emphasize that RPA/NFMA clearly states that wilderness is a co-equal value to be considered in planning for allocation of the lands of the National Forest System. Wilderness can be dealt with rationally and the RPA/NFMA planning process is the way to do it.

Wilderness is not the only resource that gives rise to proposals for separate treatment. Proposals to increase the amount of timber cut on the National Forests have been made periodically, most recently through the President's anti-inflation effort. If the RPA/NFMA planning process is to achieve its potential, and the credibility essential to acceptance, it must be allowed to work. It must be allowed to run through at least one full iteration, from the National Assessment and Program to the development of regional and forest plans and back to the National Assessment Program. Such a cycle cannot be completed before 1985, and, of course, it is not realistic to expect political forces to refrain from efforts to intervene in the process over that long period of time. In our view, Congress itself must prevent downgrading of its own legislative design for management of the National Forests.

The Draft Regulations and Their Revisions Were Developed With Full Public Input and This Trend Should Be Continued

All activities in developing these draft regulations were completely open to the public. All documents were made freely available and an open dialogue with the public was maintained. This openness was continued through revision of the regulations and drafting of our final report.

A report prepared by the Conservation Foundation [2] points out that this degree of public involvement is probably "unique in Forest Service experience." The meetings of the committee provided a continuing forum for interchange on alternatives among agency personnel, environmental and industry representatives, and the committee itself. The Conservation Foundation found this degree of interaction "truly impressive" and suggested that it might well lead to better regulations than would have emerged from the more traditional, internalized rule-making process. Despite this vigorous effort at full public participation, attendance at meetings of the committee has largely been limited to representatives of groups with clear interests in the outcome of the regulation-drafting process. Few members of the general public have attended.

Although we can hardly be considered an impartial body in this regard, we agree strongly with The Conservation Foundation's assessment. Although complete openness can create serious procedural problems in developing a document as complex and controversial as these regulations, in the long run the process itself benefits.

One major thrust of RPA/NFMA is to require full public participation in Forest Service planning. The draft regulations make a sincere effort to incorporate such participation, and our revisions are aimed at improving and clarifying the proposed procedures. It is our strong hope that the spirit of openness will continue and will pervade the entire future forest planning effort.

The Proposed Three-Tiered Planning Concept Involving National, Regional and Forest Planning Is Sound

RPA/NFMA specifies two levels of planning for the National Forest system: (1) The National Assessment and Program, which involve the forest resources of the entire nation, including those of the National Forests, and (2) land and resource management planning for individual units of the National Forest system. Early in development of these regulations, the Forest Service proposed that a third level, regional planning, be instituted. Such plans, one for each of the nine Forest Service regions, would serve as a link between national and local planning, as a means for aggregating capabilities of individual National Forests and for formulating and disaggregating national goals and targets, and as a means of dealing with difficult technical issues that transcend the concerns of individual forests.

There has been no substantive criticism of the concept of the regional plan. We believe that the idea is sound and urge that it be incorporated in the final regulations. However, there has been criticism that the role of the regional plan, its content, and the procedures by which it is to be developed are not well enough described in the draft regulations. We find this criticism to be valid and propose changes to deal with it.

The importance of regional plans needs to be emphasized. Although they are not mentioned anywhere in legislation, regional plans have assummed a vital role in the RPA/NFMA planning process. As we show in the next section, they provide the mechanism for aggregating the capabilities of individual forests and for assigning goals to individual National Forests. Furthermore, the regional level is where some of the most difficult issues, such as size of clearcuts, rotation age, and choice of silvicultural system, are assigned for resolution. The importance of these issues varies by regions. Although we have some reservations about this assignment, we conclude that it is both rational and appropriate. It is rational because the regions seem a reasonable place to develop standards for practices that simply are not amenable to regulation by national standards, and appropriate because it seems to most nearly meet the intent of Congress that standards for certain practices be developed "by forest type or geographic region." However, we here must stress the

2 Shands, W. E., P. R. Hagenstein and M. Roche. 1978. *Changing ground: future directions for the National Forests.* Draft report, The Conservation Foundation. September 28, 1978.

obvious. Once the assignment of such crucial determinations has been made to the regions and to the Regional Foresters, *there is no place else they can be assigned.* The hot potato has been tossed in the Regional Forester's lap and he *must* deal with it. Development of adequate regional plans is truly crucial to the success of RPA planning, and the Forest Service must make it the highest order of priority once these regulations are approved.

To Be Successful, RPA/NFMA Planning Must Involve Both Upward and Downward Flows of Information on the Demand for and Supply of the Renewable Resources

An important requirement of the RPA/NFMA planning process is that demand for, and supply of, the renewable resources of the National Forests must be assessed and that a National Program equating demands and supplies be formulated on the basis of this information. THe RPA/NFMA planning process should begin with on-the-ground assessments of the capabilities of each National Forest to supply goods and services at various budgetary levels, and the local demand for these goods and services. Planning at the national level should take into account these local data, insure that national demands are considered, and then allocate regional and forest targets in light of reasonable budget levels. There must be a continuous iteration and interchange of information between levels on availability of resources, demand, and budgetary considerations. Therefore, it follows that regulations defining the RPA planning process should clarify the iterative nature of the process.

The draft regulations have been criticized by a number of different interests for failing to convey an adequate concept of RPA planning. This criticism is perhaps mostly clearly explained by Resources for the Future [3] (RFF) in its draft comments on the regulations. RFF states that the draft regulations leave the impression that "the goals, objectives, and indeed in operational terms, *the production targets* are synthesized from high level intelligence absent relevant information," and "The planning process represented * * * conveys the impression that the National Forest system targets are divined in some manner independently of the basic information which should result from a rational planning process * * *."

[3] Bowes, M., J. Haigh and J. Krutilla. 1978. *Review and evaluation of proposed rules for National Forest System land and resource management planning.* Comments by Resources for the Future. December 15, 1978.

We find these criticisms valid in some degree, although the impression may result from incomplete wording in the draft regulations rather than from an intention to express any other philosophy. During all discussion of the draft regulations, their iterative nature was stressed and it was always indicated that the National Assessment and Program should be solidly founded on data gathered at the National Forest Level. Therefore, we propose language to clarify the original intention of the regulations. In preparing our language, we have given close attention to material provided by RFF.

The Planning Process Itself Must Be Flexible and Subject to Future Examination and Revision

Although the planning process that is embodied in the regulations as we have revised them is sound, there is no reason to suppose that it cannot be improved. The entire planning effort that will take place once these regulations are approved will produce a vast amount of practical experience that does not now exist. Furthermore, research efforts, both inside and outisde the Forest Service, likely will concentrate attention on the problem areas in which present knowledge limits our ability to devise entirely appropriate regulation.

Therefore, it is our opinion that the regulations should provide for their own continued evaluation and periodic revision on the basis of new experience and information. We propose a new section at the end of the regulations to embody this concept.

Monitoring of the Consequences of Management Is Vital to the Success of Planning

A recurrent theme in the Congressional debate on RPA/NFMA was the need for systems of monitoring that would provide information on the impacts and consequences, and allow compensatory modification of management plans where needed. A requirement in the original RPA act to "* * * study personnel requirements as needed to satisfy existing and ongoing programs" (section 3(4)) was amended to "* * * implement and monitor * * * programs (NFMA section 5). Since "monitoring" is an exceedingly general term, however, this requirement does not speak unequivocally to on-the-ground observations. Elsewhere RPA/NFMA mentions monitoring only in section 6(g)(3)(C), and only in connection with research on management systems, which we will discuss later.

Nevertheless, several other requirements of Section 6(g), namely (2)(C); (3)(E)(i–iii), and (3)(F)(v), can be fulfilled in practice only through some systematic inspection, measurement, or "monitoring" during and after management activities, coupled with provisions for evaluation and for changes in management as needed. The draft regulations provide for this in § 219.9(j) and elsewhere, as we will note later.

Some general comments about monitoring are appropriate here. The concept implied by the legislation and expressed in the draft regulations is sound in principle and far-reaching. Implementation in full detail will be more difficult than generally recognized and will require some substantial changes in present practices. Non-scientists sometimes consider monitoring and research to be the same thing; they confuse data gathering with evaluation. In the context of land management, the difference is great.

In the first place, the alterations in, say, soil, water, or vegetation following some activity such as grazing, organized camping, or timber harvesting must be differentiated from large natural variations and natural changes over time. Except when these alterations are overwhelmingly great or obvious, detection with certainty calls for an array of provisions and skills, such as prior selection of key areas to sample, or compatibility of methods and accuracy in both the initial inventory and subsequent monitoring.

In the second place, monitoring involves gathering data on the state of certain environmental indicators, such as soil disturbance, stream sediment load, or populations of a wildlife species. Any changes in the state of these indicators attributable to management activities must then be evaluated to determine whether these do indeed point to "substantial and permanent impairment of the productivity of the land" at one extreme, or perhaps to marked enhancement at the other, or to more moderate impacts, unfavorable or favorable. The evaluation depends on knowing what these indicators tell us about the behavior of the systems involved. Such knowing, in turn, is derived from research and codified experience. Without such experience to design the process and interpret the results, monitoring can be futile or wasteful.

Obviously, monitoring can provide data for further research, and new research is often necessary to determine what the changes signify in terms of productivity of the land and the state of

the resources, it supports. To be useful in land management, monitoring must extend over time and be carefully executed. For these reasons, it is costly in both money and manpower.

Forest Service budgets and personnel are insufficient to support either the monitoring process that Congress envisioned in drafting RPA/NFMA, or the yet more comprehensive requirements of the draft regulations. If the monitoring and evaluation process is to succeed to the degree required for the success of RPA/NFMA, then special administrative and budgetary attention must be devoted to it. The committee is fearful that this will require more awareness and sensitivity than existing processes of the Federal and Congressional budgetary bureaucracy allow.

Regulations Must Clearly Specify Who Is Responsible for Making Decisions

Citizens frequently express, with frustration, the view that it is impossible to find out who in an agency is responsible for a given decision. During our meetings, the charge was often heard that current Forest Service regulations do not make clear what official at which level has responsibility for intitiating, or approving, a given action.

The Forest Service is well aware of this problem and has sought to speak to it throughout the proposed regulations. Section 219.4, which describes the relationships among planning levels, also spells out the roles of the Chief of the Forest Service and the Regional Foresters with respect to the development of the National Assessment and Program and the regional plans. Section 219.4(c) and 219.8(e) describe the responsibilities of the Forest Supervisor and the Regional Forester in development and approval of the forest plan. As noted elsewhere, there is a requirement (219.9(i)(8)) that the names of interdisciplinary team members and a summary of their qualifications be included in the plan when it is published.

We find that the proposed regulations are adequate and definitive with regard to the issue of responsibility and propose no changes in this regard.

Balanced Planning for Management of Renewable Resources Requires an Appropriate Balance of Interests Among Forest Service Personnel

We have already pointed out the need for adequate numbers of personnel in the Forest Service if the planning envisioned in these regulations is ever to come about. There is, however, another equally important feature of the personnel issue and that involves the balance (mix) of professional backgrounds possessed by the Forest Service in general and its planners in particular.

Interdisciplinary planning and subsequent effective management depend upon an adequate pool of capable resource specialists trained in the various involved disciplines. There is, in our minds, a question as to whether the Forest Service now has the appropriate mix of personnel to meet the demands of such a planning effort. A number of important disciplines do not appear to be represented in numbers proportional to the demand that a major planning effort will create. For the interdisciplinary concept to work, each resource must be adequately represented on the team. There must be a person on the team who understands each resource, can act as an effective spokesperson for the resource, and, perhaps more important, who can understand the effects on a given resource of alternative management practices proposed for other resources. Wildlife simply cannot be represented on interdisciplinary teams by foresters who like to hunt or fish any more than timber can be by a wildlife manager who enjoys trees. Interdisciplinary planning depends on an adequate pool of capable resurce specialists in the various disciplines involved.

The Forest Service can create the needed pool of talent either by selective hiring or by retraining of existing personnel. Both strategies will work, but must be pursued vigorously if the agency is to produce the necessary personnel mix in time to develop the first set of forest plans. Even with shifts in hiring emphasis and internal retraining, we feel that it is unlikely that the agency can produce the appropriate mix in time to develop the first set of forest plans, given current restraints on personnel ceilings and existing workloads.

Proposed Management Practices Must Be Economically Justifiable and Supported by Competent Economic Analysis

The RPA/NFMA specifically requires economic analyses as a part of the process by which management programs are examined and their implications made clear. In fact, one of the major thrusts of RPA/NFMA is to require the Forest Service to analyze and make public the economic consequences of its programs. References in Section 6(g) require the regulations to * * * "insure consideration of the economic and environmental aspects of various systems of renewable resource management* * *" (section 6(g)(3)(A)), to consider economics in selecting harvesting systems (6(g)(3)(E,F)), and to utlilize economic considerations in determining which lands are not suited for timber production (section 6(k)). Furthermore, section 6(1) directs the Secretary to "formulate and implement, as soon as practicable, a process for estimating the long-term costs and benefits to support the program evaluation requirements of this Act." These directives, taken collectively, represent a strong instruction to the Secretary to insure competent economic analysis at all appropriate places in the planning process, and to display for consideration the economic consequences of each alternative management program, so far as they can be reasonably determined.

Some commentators contend that RPA/NFMA establishes that the National Forests are to be managed economically and efficiently and that public money is not to be spent in applications or for practices that are submarginal (where costs exceed benefits).[4] We agree that congessional direction of this sort is evident only in one area, that is, the determination of lands suitable for timber production. The legislative history of the act implies Congressional concern that timber harvesting is generally not to take place when, by some rules of reason, public benefits are less than production costs. However, we do not agree that RPA/NFMA provides a Congressional mandate to assure that benefits exceed costs for each and every management practice proposed for the National Forests. We believe that a full determination of benefits and costs must be made for all proposed management practices, but that the cost-benefit ratio is only one of a variety of criteria that may be used as a basis for finally approving any given management practice. The basic problem is that Congress has not given clear or consistent direction regarding the use of economic criteria for managing the National Forest system.

In any case, it is clear that economic analysis must permeate the planning regulations. We have several times proposed definite language defining the nature of the economic tests to be made during planning. Relatively little of this language has survived through to the draft regulations. Rather, the language in the draft dealing with economic analysis is often vague and must be improved if

[4] For a clear exposition of this view, see particularly Bowes, Haigh and Krutilla, op cit.

direction is to be clear. We will propose language at several places that we hope will resolve this difficulty.

The need for personnel to execute the analyses once their character has been decided deserves comment. The Forest Service informally has estimated that its staff resources in this area fall substantially short of those required to carry out the analyses envisioned in the regulations. As we have pointed out elsewhere, adequate personnel are absolutely vital to the ultimate success of planning. Unless serious efforts are made both to provide adequate funding and to bring a larger amount of expertise than now appears to exist in the agency to bear on economic analysis, the Congress and the public are likely to be disappointed in the quality and usefulness of the work contained in the first generation of forest plans.

Adequate Inventory Data Are Essential to Sound Plans Because Such Data Are Not Now Available for Many Forests or Resources, the Foundation for the First Generation of Forest Planning is Likely To Be Shaky

No plan is better than the resource inventory data that support it. Each forest plan should be based on sound, detailed inventories of soils, vegetation, water resources, wildlife, and the other resources to be managed. It is equally true that regional plans and the National Assessment and Program will only be as good as on-the-ground assessment of resources and capabilities at the forest level.

Unfortunately, it does not follow that truly adequate resource data will be available to support the development of every plan. In many cases, inventory data are too fragmentary or insufficiently detailed to allow firm judgments in developing management programs of the complexity demanded by RPA/NFMA. In other cases, data on certain organisms, resources, or management effects have simply never been gathered. For example, in the development of stand prognosis models for projections of timber yields, it was found that appropriate data were available for only a few species and in a few commercial timber areas. Even adjoining forests have not taken comparable data or have taken data in a form incompatible with the model. In the case of other resources, lack of inventory data is even more pronounced.

Another inventory-related problem that has inhibited planning is the general lack of compatibility among inventory efforts of different government agencies. In the past, relatively little effort has been devoted to coordination and compatibility of resource inventory programs. However, within the last year the Department of Agriculture, the Department of Interior and the Corps of Engineers have entered into an interagency agreement that offers the hope of better compatibility among future inventory efforts. We are encouraged by this step and urge the Forest Service to insure that its future inventory efforts are compatible both with other programs in the Department of Agriculture, chiefly the Soil Conservation Service, and with those other federal agencies.

The time schedule on which the first generation of plans must be developed precludes the gathering of much new inventory data. Basically, each forest will have to make do with what it has, or what it can reasonably obtain in a short time from accessible sources and existing inventory procedures. In practice, what this means is that the data base for a number of plans is likely to be marginally adequate or even shaky. Even if a Federal Government-wide crash program of data acquisition and storage were to begin tomorrow, it would not provide adequate data in time to be of much value in developing the first forest plans.

It is our opinion that there is little that can be done to rectify this deficiency immediately. All parties with interests in National Forest planning will simply have to recognize that the Forest Service cannot remedy decades of national indifference toward basic resource data in 5 years. Programs designed to remedy inventory deficiencies should begin while the first cycle of forest planning is taking place. Then, better data should be available for consideration in time for the first scheduled revisions. The Forest Service will simply have to do the best it can with what it has, while setting in motion the machinery to assure more competent data at the earliest possible time. It is also imperative that adequate attention be given in the budgetary process to the need for better inventory data programs. Without the necessary support, in money and personnel, the data base necessary to support planning can never be obtained.

The Requirement to "Provide for Diversity" Is One of the Most Difficult Issues Dealt with in These Regulations

Diversity is one of the more perplexing issues dealt with in these regulations. Section 6(g)(3)(B) of RPA/NFMA requires that the regulations specify guidelines for land management plans developed to achieve the Program goals which "provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives, and within the multiple-use objectives of a land management plan adopted pursuant to this section, provide, where appropriate, to the degree practicable, for steps to be taken to preserve the diversity of tree species similar to that existing in the region controlled by the plan." This enunciates the significant Congressinal policy that multiple-use management shall maintain a wide variety of plant and animal species in a variety of communities on National Forest system lands, and that steps are to be taken to provide this variety. Conversely it is clear that Congress did not favor management practices which result in a limited variety of species and communities unless it is demonstrated that such reduction of variety is needed to achieve overall multiple-use objectives.

Although the statement of policy is clear, there remains a great deal of room for honest debate on the translation of policy into management planning requirements and into management programs. Section 6(g)(3)(B) is the combination of materials from the House and Senate. The first portion of the section is taken directly from the Senate bill; the remainder is a slightly rewritten portion of the House bill. The Conference Committee simply melded the two and added the second qualifier "where appropriate." Thus, the final language starts with a general statement about diversity of plant and animal communities and concludes with a specific caveat regarding tree species' diversity. The Conference Report [5] states that the House portion was added because "it is the intent of the Conferees that where the resource plan is developed separately from the land management plan, that this provision would govern the resource plan as well."

The major issues in the Congressional deliberations was concern with forest type conversions, and especially with conversion of eastern hardwood stands to pine. The Senate Agriculture Committee Report [6] makes this clear by stating that "the requirement in S3091 that the guidelines provide for diversity of plant and animal communities does not preclude conversion of timber stands from one type to another.

[5] 94th Congress, Second Session, Report 94-1335, hereafter Conference Report.

[6] 94th Congress, Second Session, Report 94-893, hereafter Senate Report.

However, the Committee is aware of the widespread public concern over conversion of eastern hardwood forests to pines. No conversion should be permitted unless it would be consistent with multiple use management and it is provided for in a land managment plan developed with full public participation and review." Thus, type conversions are not prohibited, but are to be used only when fully studied and justified.

The intent of Congress is clear: (1) Diversity is to be considered throughout the planning process, (2) steps are to be taken to maintain or increase diversity of plant and animal species and communities by management, and (3) management measures which tend to reduce diversity are to be used only when shown to be necessary to achieve overall multiple use objectives.

Translation of Congressional policy into reasonable regulations has proved a formidable task. Diversity has become a controversial and hotly debated issue. There are those who believe that Congress gave the Forest Service wide latitude in providing for diversity. They believe the two qualifiers "where appropriate" and "to the degree practicable" indicate the granting of rather wide latitude. These persons tend to feel the draft regulations are too restrictive and go far beyond the intent of Congress in providing for diversity. Other persons believe that diversity is a major key to making the National Forests attractive and productive of wildlife. They believe the regulations must be very specific and provide little discretionary authority to the Forest Service. These persons tend to feel that the lure of monetary returns from pure forests of pine will produce biological deserts and visual blight. They tend also to feel that less diverse forests are unstable communities, while diverse forests are stable and productive.

The Committee concludes that reason lies between these polarized positions. We believe the regulations should go beyond a narrow and limited restatement of the language of the Act to assure that the Forest Service shall indeed "provide for" diversity by maintaining and preserving existing variety, and to encourage steps to be taken to increase variety where that is appropriate. However, we believe it impossible to write regulations which are specific on how this is to be done in all regions, in a wide variety of vegetation types, and with a wide range of natural and human factors to consider. We believe it reasonable to specify that the interdisciplinary team consider diversity a major concern, and deal with it at several important junctures in the planning process. Most important, the regulations must assure that changes in diversity required by each alternative shall be identified, and that when significant changes are involved there shall be a detailed justification showing why those changes are needed to meet overall objectives of the Program.

Concern for diversity is stated at several places in the draft regulations rather than in a single section (219.9, *'219.10(a)(6)'*). We approve this format because it would insure that diversity considerations are addressed at several important junctures in the planning process. In addition, the planning process requires concern for diversity in many other places. The interdisciplinary team must assess environmental effects and determine consequences of alternate management strategies throughout the planning process. This insures concern for diversity at many stages, since both abundance and variety are objectives of multiple use management.

We worked closely with Forest Service personnel on the definition of diversity. We advised that a simple dictionary definition be adopted, i.e., that diversity means variety. We believe the definition given at § 219.3(b) is scientifically and technically adequate. The legislative history confirms that this straightforward definition meets the intent of Congress. The positive policy direction established is to maintain variety and productivity through integrated multiple-use management.

No matter how diversity is defined, its measurement is complex. We have studied the question as to whether the regulations should specify use of a diversity index to measure diversity and to monitor effects of management. Various indices are used in ecological research to express complex inter- and intra-specific relationships in a natural community by use of a single numerical expression. Although several mathematical formulations have been used in ecological research, there is no substantial agreement on the meaning or significance of the figures derived. Thus, we believe use of any of the present diversity indices would divert attention from the objective of considering variety throughout the planning process. If the proposed regulations required gathering masses of complex inventory data which are extremely difficult to interpret, there would be little assurance that diversity would be maintained or enhanced.

Coordination of the Research Efforts of the Forest Service, Universities and Private Entities Is Vital if the Latest Technology and Research Findings Are To Be Incorporated Systematically Into Forest Management Programs

During the course of its deliberations, the committee has been impressed by the fact that resolution of many of the present "issues" in forest management will depend on the research findings of the many scientists in the Forest Service, the universities, and the private sector. Numerous projects are now under way that are expressly designed to deal with such problems as effects of clearcutting, maintenance of diversity, prediction of the consequences of management alternatives, refinement in the use of economic analysis, and other problems central to the forest planning process.

Therefore, it is vital that there be close and effective coordination between these research efforts and planning operations in the National Forest system. We find that, although much effort appears to be devoted to such coordination, it is not really effective in bringing managers and those with new research findings together in a way that will assure translation of the findings into new, or altered, management practices. This problem, is of course, not unique to the Forest Service. It characterizes all government resource management programs that have research components. We do not have any solutions to offer. We merely wish to point out that the Forest Service bears a particularly heavy burden, because of its emphasis on planning and on research, to assure that the taxpayers' dollars are not wasted on ineffective or unheeded research efforts. The Technology Transfer Task Force, recently established by the Forest Service, is an effort to deal with this problem.

It is also true that much new, vitally-needed, research will be identified as efforts to resolve the complex issues inherent in multiple use management of renewable resources are intensified. Throughout our report we stress that such new research will be needed in the area of economic analysis. It is equally obvious that careful efforts to carry out the different silvicultural systems in a way that is compatible with protection of the environment will identify areas in which our present knowledge is inadequate. A focused, coordinated effort by all persons and entities with interest in the nation's forests will be the most effective means of getting this enormous research task done.

Competent Planning Will Be Costly and Resources Must Be Made Available

Although it is not possible to estimate accurately what it will cost to implement these regulations, the cost will be high! Additional costs will be incurred, not only in planning, but also in inventory requirements and in the monitoring and research necessary to insure protection of soil, water, and other resources. Although these costs will initially be high, they should decrease with time. We assume the members of Congress who debated this legislation in committee and on the floor recognized that they were establishing a planning process which required input of very substantial "new" funds. We also assume they recognized the need for additional personnel in a wide variety of disciplines to insure that the planning is truly interdisciplinary. Functional planning will be eliminated, and a more integrative process will take its place. Detailed inventories, public participation, coordination, complex economic analysis, and monitoring each has associated costs. We can only hope that Congress intended to fund fully the efforts it demanded. Otherwise RPA/NFMA will be a hollow exercise. To be sure, some economy can be achieved by the elimination of current functional and unit planning. However, it is our opinion that these savings will quickly be consumed by the heavy data and personnel demands of the new planning envisioned by RPA/NFMA.

Integrated planning for multiple resources by interdisciplinary teams is neither simple nor easy. New methods must be developed, and the Forest Service must be given the resources, the personnel, the time, and the latitude to develop and test new and innovative ideas. Unless funds and personnel are approved, RPA/NFMA will prove to be a step backward in the management of the National Forest system. The RPA/NFMA provided that the administration's budget submitted to Congress should be commensurate with the management activities prescribed for the National Forests. Because in the first year of this act the administration's budget requires a serious reduction in force of the Forest Service, we are fearful that neither the administration nor the Congress will acknowledge, in financial terms, the increased demands imposed by RPA/NFMA.

Very rough estimates of the costs of planning alone in the near future are available from several sources. Although the Senate included no additional costs for planning in its estimates of the costs of S. 3091 (p. 57) and the House Interior Committee Report [7] (p. 46–47) repeats the same data (which emanated from the Congressional Budget Office), the House Report does contain a supplemental statement on H.R. 15069 from the Department of Agriculture indicating that the costs of planning incurred under section 6 would be $20 million per year from 1977–1981. The fact that the Congressional Budget Office failed to include costs for planning in its data brings into question our assumption that Congress recognized the potential cost of the planning effort it created. The USDA recognizes that planning will cost money; we regard its estimates as grossly conservative. Therefore, we emphasize what was said earlier—if this process is to work, it must be funded at a realistic level.

If the additional funds and manpower needed to execute the planning process described in these regulations and to implement the management programs that derive from planning are not made available, one of two situations may occur. First, the Forest Service will have to adjust its activity within existing levels of funding and manpower to get plans done. In this event, it is likely that plans will not meet the full intent of these regulations and that other important on-going management tasks will be neglected. Alternatively, plans may not be completed within the time limits prescribed in the statutes. In the worst of circumstances, both events may occur. Such a situation would clearly be tragic and would subvert the good intentions of Congress.

Successful Implementation of the RPA/NFMA Depends on the Prompt Development of a Set of Final Planning Regulations and on Support of Them by the Various Constituencies With Interests in the National Forests

The last 10 years have not been happy ones for the National Forests or for the Forest Service. the agency and the lands that it manages have been submerged in controversy. Professional judgments have been called into question and long accepted practices denounced. Court decisions have rendered the agency almost without authority to manage National Forest lands as it felt they should be managed. Eventually, Congressional action in the form of RPA/NFMA was needed to provide a sound legislative basis for operation of the National Forest system.

The final regulations cannot speak to every issue that has been raised about management of the national Forests, nor can they resolve every foreseeable concern that each interest group might have. Rather, a workable product that does the best possible job of dealing with the issues must be approved and put to work. The National Forests should not sit forever in limbo.

We also emphasize that, in order to work, the planning process envisioned by these regulations must be supported by all parties with interests in the National Forests. The process can be made to work, but not if it is approached divisively. Implementation of these regulations can being about either of two futures. The next few years can be a constructive period of dialogue, common effort and cooperation, or they can be a continuation of the present paralysis of mistrust, bickering and negativism. It is clear that the nation's interests will be served only by diligent pursuit of the former, constructive path.

Section-by-Section Analysis

Here we provide a section-by-section analysis of the draft regulations. We discuss each issue that we have considered to be significant in relation to the section of the regulations in which it occurs. Each of these significant issues, and a number of others of lesser magnitude, is discussed in a common format. A brief statement of the issue and its background is given. We provide our interpretation of the intent of Congress, as we can discern it based upon RPA/NFMA and legislative history documents. The content and intent of the draft regulations are summarized and criticized. Finally, where appropriate, we provide new or substitute language. In those few cases where there is no discussion of a section of the draft regulations, it can be assumed that we accept that wording and would support its adoption as written.

219. Purpose

We find this section to be an adequate statement of the purpose of the planning process described in the regulations. No major criticisms of the section have been brought to our attention, either at our meetings or through written comments. Therefore, with one minor addition, we recommend adoption of the wording as proposed. In order to make clear that protection and preservation from pests by ecologically compatible means is the principle that should guide the incorporation of pest management practices into plans, we recommend that an additional section (j) be added at the end as follows:

"(j) Protection and preservation of all forest resources from depredations by

[7] 94th Congress, Second Session Report 94–1478, Part 2, hereafter House Report.

forest pests by ecologically compatible means."

219.2 Scope and Applicability

We recommend adoption of this section as written in the draft.

219.3 Definitions

We have little substantive comment to make about this section. Although there has been considerable criticism of a number of the proposed definitions, and many substitutes have been proposed, we do not find the substitutes materially better than those proposed by the Forest Service. Furthermore, we do not find any definitions proposed by the Forest Service that would materially limit the planning process or which would put a special, or inappropriate, meaning on any term. Therefore, with certain suggestions, we recommend that the language of the draft be adopted.

Because of their importance throughout the regulations, we suggest that the definitions of silvicultural terms now included in § 219.10(d)(1), including even-aged management, silvicultural systems, and uneven-aged management, be moved to § 219.3. Furthermore, we concur with the recommendations of the Forest Service Silvicultural Task Force that the wording of these definitions should be changed. The definition of *silvicultural systems* should be changed to make clear that the silvicultural system used has a major effect upon all resources, and not just on the timber resource. The definition should be expanded to make clear that:

1. The form and character of forests produced determine the level of benefits that can be obtained from all resources, not just timber.

2. A silvicultural system includes all management actions used in manipulation of vegetation. Thus, the system includes the cutting methods used to harvest trees, provisions for regeneration and intermediate culture, and all other techniques used such as seeding, planting, fertilization, pruning, site preparation, weed control, slash disposal, etc.

3. Reference to classification on the basis of harvest cutting method is eliminated.

We propose the following substitute definition:

"( ) "Silvicultural Systems:" A silvicultural system is a combination of interrelated actions whereby forests are tended, harvested, and replaced. The combination of management actions used in this process to manipulate the vegetation results in forests of distinctive form and character, and this determines the combination of multiple resource benefits that can be obtained. Systems are classified as even aged and uneven aged." The definition of enven-aged management should be changed slightly to:

1. Eliminate reference to clearcutting, shelterwood cutting, and seed tree cutting as silvicultural systems. In spite of use of this terminology in Agriculture Handbook 445 and elsewhere, these are cutting methods, not silvicultural systems. All three cutting methods are used to create essentially the same form and character of forest.

2. Recognize that clearcutting, shelterwood, and seed tree cutting have many variations. They are not precise and distinct cutting methods, but statements of general intent. There are many variations in degree, extent, timing, and arrangement of cutting that can be used to meet particular multiple use needs.

3. Include information on regulation of cutting under even-aged silviculture.

The definition of uneven-aged management should also be change in a manner parallel to the definition of even-aged management to:

1. Eliminate reference to cutting methods as systems.

2. Indicate that there are cutting methods other than single-tree selection and group selection that can lead to uneven-aged forests.

3. Include information on regulation and make the point that unevenaged regulation may often include both volume and area control.

We propose the following substitute definitions:

"( ) "Even-aged Silviculture": The combination of actions that results in the creation of stands in which trees of essentially the same age grow together. Managed even-aged forests are characterized by a distribution of stands of varying ages (and therefore tree sizes) throughout the forest area. Regeneration in a particular stand is obtained during a short period at or near the time that the stand has reached the desired age or size and is harvested. Clearcutting, shelterwood cutting, seed tree cutting, and their many variations are the cutting methods used to harvest the existing stand and regenerate a new one. In even-aged stands, thinnings, weedings, cleanings, and other cultural treatments between regeneration cuts are often beneficial. Cutting is normally regulated by scheduling the area of harvest cutting to provide for a forest that contains stands having a planned distribution of age classes."

"( ) "Uneven-aged Silviculture": The combination of actions that results in the creation of forests in which trees of several or many ages may grow together. Managed uneven-aged forests may take several forms depending upon the particular cutting methods used. In some cases, the forest is essentially similar throughout, with individual trees of many ages and sizes growing in close association. In other cases, small groups of trees of similar age may be intermingled with similar groups of different ages; although the groups are even aged, they are not recorded separately. Finally, an uneven-aged forest may contain two or three distinct age classes on the same area, creating a storied forest. Under uneven-aged silviculture, regeneration is obtained at several or many times during the period required to grow an individual tree to maturity. Single-tree selection cutting, group selection cutting, and other forms of partial cutting are used to harvest trees, obtain regeneration, and provide appropriate intermediate culture. Cutting is usually regulated by specifying the number of proportion of trees of particular sizes to retain within each area, thereby maintaining a planned distribution of size classes. Scheduling by area harvest is often used as well."

At a number of places throughout the text we have urged that the principles of integrated pest management govern the choice and application of pest management practices. Accordingly, we propose that the following definition be included:

"( ) "Integrated Pest Management": A process in which all aspects of a pest-host system are studied and weighed to provide the resource manager with an information base for decisionmaking. Integrated pest management is, therefore, a part of forest or resource management. The information provided includes the impact of the unregulated pest population on various resource values, alternative regulatory tactics and strategies, and cost/benefit estimates for these alternative strategies. Regulatory strategies are based on sound silvicultural practices and ecology of the pest-host system and may consist of a single tactic such as application of a pesticide, or a combination of tactics such as stand improvement plus selected use of pesticides. The overriding principle in the choice of strategy is that it is ecologically compatible or acceptable."

Finally, certain other terms could be misinterpreted and should be defined. These include: *Guidelines, policy, procedure, Regional Area Guides, Regional Silvicultural Guides, standards,* and *type conversions.* We recommend that the Forest Service

prepare such definitions and include them in the final regulations.

219.4 Planning Levels

We have previously discussed the importance of the three-tiered planning concept and of the regional plan. In addition, we have pointed out that the wording of the draft regulations does not adequately convey the important iterative nature of the three levels of planning.

The proposed regulations describe the Congressional requirement that the Chief of the Forest Service develop the National RPA Assessment and Program. They further require that each regional forester develop a plan for his region. The latter plans must both contribute to, and respond to, the national RPA Program by providing (1) long-range policy, goals, and objectives for the region assigned by the national program; (2) the ability of the region to achieve the assigned output levels of goods and services; (3) resource objectives for the land in each forest plan; and (4) guidelines to resolve public issues and management concerns, including such matters as size of clearcuts to be used in different forest types. It is at the regional level, therefore, that the Secretary of Agriculture is to meet the expectation of Congress that he "prescribe, according to geographic area, forest types or, other suitable classifications, appropriate systems of silviculture" and, on the basis of similar classifications, "maximum size limits for areas to be cut in one harvest operation" (NFMA, 6(g)(3)(F)(iv)). The regulation concludes with general statements relating to the forest supervisor's responsibility for developing the forest plan and with general provisions for the scope and content of that plan.

Although the general structure of this section is adequate, changes are needed to (1) make clear the iterative exchanges among the various planning levels and (2) the procedures for developing the reginal plan and its content.

Therefore, we propose the following language to be inserted in lieu of the existing 219.4:

"219.4 Planning Levels

The planning process includes detailed upward flows of information on local production capabilities and costs as well as local and regional demands. The national level aggregates local information, ensures that national demands are considered, and decides on the appropriate level of national, regional, and local activities and budget allocations under various reasonable and likely total budget levels.

(a) National. The Chief, Forest Service, shall formulate the Renewable Resources Assessment which will analyze the present and future demands for and supplies of the nation's forest and rangeland renewable resources. Demands will be assessed over a range of prices including the price which would equate supply and demand. The assessment of supply will indicate the feasible range of alternative mixes of outputs which may be forthcoming at each of various reasonable cost levels and will be based on the capabilities of local land units. The Chief shall also analyze opportunities to improve or extend the uses of the nation's forest and rangeland renewable resources. The Chief shall develop a recommended renewable resource program, based on the assessment, which will best meet the needs of the general public giving consideration to the costs of supply and the relative values of outputs as determined through the assessment of demands for both market and non-market outputs. The program will include quantified national renewable resource goals and objectives and the portion of each national goal and objective expressed as a range of outputs, which shall be assigned to each region for the regional plans. The ranges of regional goals and objectives will be based on local supply capabilities and costs so that a region can be expected to achieve the assigned level of goods and sevices from National Forest land. The goals and objectives will be re-evaluated and adjusted in subsequent revisions to reflect changes in relative values of goods and services and changes in the costs and capability in supplying such outputs.

(b) Regional. Each Regional Forester shall develop a regional plan designed to accomplish the region's assigned portion of the national program. The regional plan shall meet the minimum content requirements described in *'219.8'*, shall be developed utilizing the inderdisciplinary approach described in 219.5, and shall utilize the public participation and coordination requirements generally described in 219.6 and 219.7, and as further specified in *'219.8(c)'*.

(c) Forest. Forest plans shall be developed for all lands in the National Forest system. One forest plan may be prepared for all lands for which a Forest Supervisor has responsibility, or separate forest plans may be prepared for each National Forest, or combination of National Forests, within the jurisdiction of a single Forest Supervisor. These forest plans will constitute the land management plans developed in accordance with section 6 of the Forest and Rangeland Renewable Resources Planning Act and will include all resource management planning. Forest plans must identify the range of resource capability information which is needed to formulate national, regional and local goals and objectives. In particular, they should indicate a range of alternative mixes of outputs which would be forthcoming at each of various reasonable budget levels for the local planning unit. Forest plans will be consistent with the goals and objectives set forth in the regional plan."

In addition, we propose a new section to be entitled Regional Plan, to be worded as follows, with subsequent sections renumbered:

" '219.8' Regional plan

(a) Regional plans must contribute to and respond to the Renewable Resource Assessment and Program by providing the following as a minimum:

(1) Long-range regional policies, goals, and objectives assigned by the National Program;

(2) Resource production objectives for each forest plan consistent with the regional plan;

(3) Guidelines to resolve public issues and management concerns, including those specific items mentioned in *'219.8(e)'* and those items identified through public participation and coordination activities.

(b) An environmental impact statement shall be prepared for each regional plan or revision thereof.

(c) In preparing the regional plan, the Regional Forester shall be guided by the general requirements for operation of the interdisciplinary team (219.5), for public participation and environmental impact statement preparation (219.6) and for coordination (219.7). However, public participation and coordination activities shall be adapted to the circumstances of regional planning. Particular efforts shall be made to involve regional and national representatives of interest groups. Coordination shall stress involvement by appropriate state, multi-state and regional agencies and entities. Efforts shall be made to obtain appointment of the designated state official described in *'219.7(d)(1)'* and to coordinate with each state through that person.

(d) Because Forest Service regions are heterogeneous, contain diverse topography, soils and forest types, and reflect widely differing political and social circumstances, the Regional Forester shall include in the regional plan a discussion of these specific differing conditions and circumstances.

He may do this through preparation of Regional Area Guides as defined in § 219.3.

(e) In addition to public issues and management concerns identified through public participation and coordination, each regional plan shall:

(1) Prescribe according to geographic areas, forest types, or other suitable classifications, appropriate systems of silviculture to be used within the region;

(2) Determine, according to geographic areas, forest types, or other suitable classifications, at least the maximum size limits for areas to be cut in one harvest operation. In establishing such size limits, the factors enumerated in *'219.10(a)(3)(ii)'* shall specifically be considered;

(3) Set standards for biological growth potential to be used in determining the capability of land for timber production as required in *'219.10(d)(2)'*;

(4) Set standards, by forest type or species, for assuring that all stands of trees have reached the culmination of mean annual increment prior to harvest;

(5) Define the management intensity and utilization standards to be used in determining harvest levels for the region;

(6) Specify by geographic areas, forest types, or other suitable classifications, the minimum number, size, distribution, and species composition of regeneration necessary to define adequate restocking as required in *'219.10(d)(2)'*.

(7) Establish the alternate cost standard(s) or price(s) to be used in determining the potential economic suitability of land for commercial timber production as required in *'219.10(d)(2)'*. These prescriptions, size limits, and standards shall be justified through the use of appropriate scientific and technical criteria and may be established either as an integral part of the regional plan or through Regional Silvicultural Guides as defined in § 219.3. If guides are prepared, then such preparation shall be subject to the same public participation and approval requirements as pertain to the regional plan and they shall be considered as a part of the regional plan. When geographic areas or forest types occur in more than one region, prescriptions, size limits, and standards shall be prepared to assure their compatibility as well as the compatibility of inventory data and monitoring techniques. In the event that regional plans establish different prescriptions, size limits, or standards for the same geographic area or forest type, each regional plan involved shall explain and justify such differences.

(f) The regional forester shall transmit the proposed regional plan to the Chief, Forest Service, for approval. The Chief shall review the transmittal and take either of the following actions:

(1) Approve the transmittal, which may become effective 30 days after the date on which the final environmental impact statement is filed with the Environmental Protection Agency, and attach to the plan a statement documenting approval; or

(2) Disapprove the transmittal, which shall be returned to the Regional Forester with a written statement of the reasons for such disapproval.

(g) When each regional plan is approved, each forest plan prepared under these regulations will be revised or amended to bring it into conformity as soon as practicable.

(h) For purposes of administrative review pursuant to § 211.19 of this title, the approval or disapproval of the regional plan shall be the only decision subject to review. The period for submission of a notice of appeal shall run from the date of filing of the final environmental impact statement with the Environmental Protection Agency.

(i) All regional plans must be reviewed after each National Program is adopted, or whenever the Regional Forester or the Chief of the Forest Service deems it desirable. Revisions must be prepared in accordance with the requirements outlined in the section for preparation of regional plans, and will not become effective until approved in accordance with the provisions of *'219.8(f)'*."

219.5 Interdisciplinary Approach

A key provision of RPA/NFMA requires that Forest Service planning use a "systematic interdisciplinary approach to achieve integrated consideration of physical, biological, economic, and other sciences." This requirement appears in section 6(b) of RPA/NFMA and was contained in one of the two original sections of the RPA/NFMA relating to planning when it was passed in 1974. One of the key concerns of Congress as it framed RPA/NFMA, therefore, was to insure that this requirement would be met during the planning process. The Senate Bill actually contained a statement that regulations promulgated by the Secretary of Agriculture "shall include * * * specifying how the interdisciplinary approach * * * will be implemented." Although this requirement was not included in the compromise bill adopted by the Conference Committee, the Conference Report states that "The Conferees anticipate that the regulations promulgated under amendments to present section 5 of the RPA will specify how the interdisciplinary approach required by the RPA will be implemented (including the manner in which the expertise of affected state agencies will be obtained and used in the preparation of plans) * * *" Therefore, it is clear that the regulations must include provisions that describe how the interdisciplinary approach will be implemented. In short, they must do more than state that an interdisciplinary approach will be used. They must describe how it will work.

There is a special burden on the Committee of Scientists with regard to the interdisciplinarity requirement, because section 6(h) of NFMA states that the second of the Committee's two charges is "* * * to assure that an effective interdisciplinary approach is proposed and adopted." We have taken this admonition to heart in our analysis of the regulations and, as we will show, find that the material contained in the draft regulation is not adequate to "assure an effective interdisciplinary process."

The Committee feels that there are three issues central to assuring that an effective interdisciplinary approach is adopted. These are:

1. The composition of the team and the qualifications of its members.

2. The philosophy that guides the team while it operates.

3. The actual planning process that the team uses.

Requirements must be spelled out in each of these areas in order to provide a satisfactory framework within which the team can work.

The draft regulations provide (219.5) only the barest of guidance as to the composition of the team, the qualifications of its members, and the philosophy that will guide its operation. Much more detail is provided about the planning process that is to be used (219.5). The draft is, therefore, deficient in its requirements for interdisciplinarity.

Discussions of implementation of the interdisciplinarity requirement occupied much time at our meetings, and it is clear from these discussions that assuring an interdisciplinary approach through regulations is very difficult. There are a number of pitfalls, and a discussion of these will reveal some of the problems that the Committee feels should be addressed in the final regulations.

Obviously, the composition of a planning team and the qualifications of its members are crucial to its success. It is clear that listing in the regulations the disciplines to be included on each planning team will not assure

interdisciplinarity nor will a detailed elaboration of qualifications assure team members who are capable of interdisciplinary interaction. Therefore, we concur with the requirements of the draft regulations that provide for flexibility with regard to the number and qualifications of members of teams and with the requirement that the names of team members and their qualifications be contained in the plan (219.9(i)(8)). However, we feel that more specific requirements are necessary, and we suggest substitute language.

As we have stated, immediate implementation of the draft regulations, or of our suggested alternatives, will place great stress on the professional resources of the Forest Service. Past staffing patterns, combined with recent limitations on personnel ceilings, will make it difficult to activate large numbers of interdisciplinary teams in the near future. Rather than using this difficulty as a reason for faulty or abbreviated planning, the agency should begin immediately to seek increased specialist assistance through short-term employment arrangements, and to implement accelerated training and retraining efforts for current employees.

The statement from the Conference Report that " * * * the manner in which the expertise of affected state agencies will be obtained and used in the preparation of plans * * *" makes it clear that involvement of the states in Forest Service planning was a desirable feature in Congress' eyes. The same view was presented to us in our meetings, paricularly by Forest Service and state personnel in Alaska. There, it was made clear that the success of Region 10's planning effort could in large part be attributed to the fact that state personnel participated as full members of the interdisciplinary teams. Original drafts of the regulations dealing with interdisciplinarity included the provision that persons other than Forest Service employees might also be appointed to interdisciplinary teams. We have been informed that this procedure may be contrary to certain provisions of the Federal Advisory Committee Act, although we have not been given a copy of the legal ruling. This situation seems to constitute another of those interesting situations where the intentions of Congress may well be foiled by its own legislative actions. The Committee believes very strongly that state personnel, and other private citizens where appropriate, should be able to serve on interdisciplinary teams. On the assumption that this is, at least for the moment, not legally possible, the Committee proposes no language to deal with the matter for inclusion in the section on interdisciplinarity but rather includes proposals for consideration in § 219.7 (coordination).

The philosophy that guides a team is also crucial to its success. Its essential features are that appropriately qualified team members interact in an essentially continous manner so as to give consideration to all resources, and to the effects of management of one resource upon other resources. The final product must be the result of cooperative effort among all team members and not just a series of individual disciplinary reports integrated together. The draft regulations provide very little language expressing the flavor of this philosophy, and the Committee therefore proposes additional language.

The planning process described in § 219.9 certainly can be implemented by a properly constituted, properly managed interdisciplinary team. Properly executed, the proceses envisioned can lead to interdisciplinary consideration, evaluation, and resolution of issues. As indicated later, we find the planning process adequate and consistent with the interdisciplinary requirements of RPA/NFMA.

In order to incorporate the above comments into the final regulations, we propose the following substitute language for § 219.5 in its entirety:

"219.5 Interdisciplinary Approach

The Forest Service shall use an interdisciplinary approach at each level of planning in the National Forest system to assure that plans provide for multiple use and sustained yield of the products and services to be obtained from the National Forests in accordance with the Multiple Use-Sustained Yield Act of 1960. This approach must insure coordinated planning for outdoor recreation, range, timber, watershed, wildlife and fish, and wilderness. Land management systems, harvest levels, and procedures must be determined with due consideration for (1) their effects on all resources, (2) the definition of "multiple use" and "sustained yield" as provided in the Multiple Use-Sustained Yield Act of 1960, and (3) the availability of lands and their suitabilities for resource management. The interdisciplinary approach shall also incorporate public participation (219.6) and coordination with other levels of government and with other federal agencies (219.7).

(a) An interdisciplinary team shall be used at each planning level to carry out interdisciplinary planning and to advise the responsible Forest Service official. Through essentially continuous interactions, the team shall insure that planning achieves the goals of multiple use and sustained yield management, by giving consideration to all resources and to the effects of management of one resource upon other resources. The interdisciplinary team shall be guided by the fact that the forests and rangelands of the National Forest system are ecosystems and, hence, that management for goods and services requires an awareness of the interdependencies among plants, animals, soil and the other environmental factors that occur within such ecosystems. Proposed management programs must be both consistent with the nature of these interactions and based upon the results of economic and social analysis. Of necessity, the interdisciplinary team must be composed of individuals with different technical backgrounds representing different disciplines. However, the team must inventory resources, assess management needs and opportunities, make economic and social analyses, develop and evaluate alternative management programs, and recommend a selected alternative in a manner that reflects integrated analysis throughout. The interdisciplinary team may choose any one or a combination of the many techniques and strategies available for achieving interdisciplinary planning. Throughout, however, the interdisciplinary team shall bear in mind that the goal is a technically sound and integrated management plan.

(b) The Forest Service official responsible for development of a plan shall determine the size of the interdisciplinary team and appoint its members. The team shall be composed of Forest Service personnel who collectively represent the appropriate areas of specialized knowledge about natural resources management applicable to the area being planned. The official shall also appoint the leader of the team, and may change the membership of the team as deemed necessary. Where Forest Service employees with appropriate expertise or qualifications are not available, the team shall consult persons other than Forest Service employees.

Note.—If it proves legally possible for persons other than Forest Service employees to serve as members of teams, we recommend that the last clause of the last sentence of (b) read: "the official may also appoint persons other than Forest Service employees as team members."

(c) In the appointment of the interdisciplinary team, the responsible Forest Service official shall determine

and consider the relevance of the qualifications of each potential team member on the basis of the areas of major concern being addressed in planning for the land area under consideration. Each team member shall, as a minimum, have either (1) successfully completed a course of study in an accredited college or university leading to a bachelor's or higher degree in the member's specialized area of assignment or (2) recognized expertise and experience in professional investigative, scientific or other responsible work in the speciality which the member represents. Where available, certification programs will be used both to assure competency of individual team members and to document disciplinary representation. Field experience in the area to be planned shall be considered a desirable attribute for potential team members.

(d) In implementing the plan, the Forest Supervisor will assure an interdisciplinary approach by using a staff of several disciplines. If the Forest Supervisor determines that a new team is needed for evaluation or revision (219.9(j)) of the plan, a new interdisciplinary team will be appointed."

219.6 Public Participation

The need for participation by the public during the development of Forest Service plans and policies was stressed throughout the debate preceding the passage of NFMA. It seems clear in retrospect that many of the problems the Forest Service encountered in gaining public acceptance for its management programs stemmed directly from the agency's failure to inform and involve the public in its decision-making process. Despite strong efforts in the mid-1970's to develop effective public involvement programs, some skepticism about the Forest Service's efforts and sincerity still exists.

Congress recognized this problem and included specific language mandating public participation as an integral part of planning at several key places in its amendments to section 5 of the original RPA. The most explicit is in section 6(d) which states (1) that "the Secretary shall provide for public participation in the development, review, and revision of land management plans"; and (2) that plans or revisions shall be made "available to the public at convenient locations in the vicinity of the affected unit for a period of at least three months before final adoption, during which period the Secretary shall publicize and hold public meetings or comparable processes at locations that foster public participation in the review of such plans or revisions." the first requirement originated in the Senate and the second in the House bill. Section 6(f)(1) embodies a provision of the original Senate bill that requires plans to "form one integrated plan for each unit of the National Forest system, incorporating in one document or set of documents, available to the public at convenient locations, all of the features required by this section." In addition, public participation is required in regard to several specific actions, such as in exceeding the maximum size of clear cuts and in developing exceptions to the standards that insure that trees have reached the culmination of mean annual increment prior to harvest. Finally, the Secretary is given general authority (section 14 of (RPA/NFMA) to establish regulations relating to Forest Service public participation programs and to establish such advisory boards as he deems necessary. This latter provision originated in the Senate, and the Senate Report (p. 40) makes it clear that the Senate envisioned advisory boards at "the national level and for each region and National Forest." The conference report makes it clear that Congress intended that the regulations governing the planning process specify "procedures to insure public participation."

The minimal elements of adequate public participation can be drawn from these provisions. The public must be adequately informed of Forest Service planning activities throughout the process, the plans must be available in convenient locations, and the documents forming a plan must be integrated and located together at a convenient location so as to allow public inspection of them. Furthermore, the procedures devised to insure public participation must be clearly spelled out in the regulations governing the planning process.

The importance of public participation in Forest Service planning and of the need for a clear and unequivocal set of regulations to govern it was stressed to us at our meetings and in written material submitted to us. Without clear regulations the public does not know what is being done, when it is being done, or how to influence the course of events. It was also made clear that, to be entirely satisfactory, the regulations governing public participation must require Forest Service officials to evaluate public input and to show how that input was considered in reaching planning decisions.

Recent efforts of the Forest Service seem to us to emphasize its clear dedication to meaningful public participation. We have already called attention to the openness with which these draft regulations were prepared. The Forest Service deserves a great deal of the credit for this; it made clear from the beginning that full public participation was desired. The public participation effort associated with RARE II is also impressive. Regardless of one's attitude toward RARE II, one must be impressed with the enormous effort the Forest Service has made to solicit public comment and involvement in the process.

The proposed regulations do specify requirements for public participation that the Forest Service must meet as it carries out its planning activities at each level. They require that public participation be used throughout the development, revision, and significant amendment of plans, although the scope and kind of participation is left to the discretion of the Forest Service official. This process begins with the notification in the **Federal Register** of intent to prepare a draft environmental impact statement. Certain notice requirements are spelled out and responsible officials are allowed the latitude to adapt to the circumstances with which they are confronted. The draft regulations require that a list of interested individuals and groups be kept and notified of all public participation activities. All activities must be documented. Plans are to be made available at certain specified locations and availability at other locations convenient to the public is discretionary.

Although the proposed regulations offer a good general framework for public participation, it is our view that more specific requirements in several areas should be included. Although the proposed regulations are long, and will be made longer by the addition of the material we propose, we consider the additional specificity necessary. It is particularly important that regulations specifying the way in which the public can be involved in planning are clear, because these are the "ground rules" that the public will read and use to govern its actions.[8] Vagueness and unreasonable discretion can only lead to discontent and an unhappy, uninformed public.

We propose additions in the following areas:

1. There should be, in addition to a general policy statement at the beginning of the section, a brief

[8] We are indebted to the Environmental Protection Agency for several ideas and concepts which we "borrowed" from its draft regulations for public participation in several water quality programs issued July 31, 1978.

statement of the objectives of public participation. This statement should specify that the purpose is to obtain the views of the public on the issues to be dealt with in planning, to inform the public of proposed Forest Service actions, and to solicit responses to these proposed actions. The purpose is a mutual program of information exchange and education involving the public and its resource management specialists. Public participation should not be construed as a vote-gathering mechansim; rather, it is a mechanism for insuring well informed, thoroughly considered, and completely open decisionmaking by the Forest Service.

2. Public participation should take place at a certain minimum number of specified key steps in the planning process. Specifying these steps will assure that the public has an opportunity to participate "throughout" the process and will provide guidance to the Forest Service official in establishing a process adapted to the conditions of the plan he is developing. The regulation should be modified to require public participation, at a minimum, (1) at the beginning of the process, (2) after the conclusion of inventories and assessment, and (3) before a preferred alternative is chosen.

3. In addition to the requirement for documentation in the draft regulations (219.6(h)), the final regulations should require the responsible official to show evidence that he has analyzed, evaluated, and considered all public input obtained during the process of developing a plan. Although this is a requirement of NEPA regulations, we feel it advisable that it be restated in the context of these regulations.

4. Some effort should be made to specify the kinds of places that would meet the "other convenient locations" wording in the law. Although there is clearly no end to the places that could be specified, we suggest that, as a minimum, at least the county court houses or public libraries in the counties directly affected by the plan be specified.

5. So as to clarify the scope of activities included as public participation, we recommend moving the definition of public participation activities from § 219.3 to 219.6.

6. The direction contained in the first sentence of section (b) of the draft regulations needs to be clarified. As presently worded, the responsible Forest Service official is free to determine the nature of the public participation for any planning effort. We propose that clearer direction be provided by:

a. Stressing that informal activities are to be encouraged so that free exchanges of information and views between the Forest Service and the public are the outcome;

b. Stating that obscure notification, as in the legal pages, shall not be acceptable as the sole means of public announcement of proposed meetings;

c. Indicating that public participation does not remove the responsible official's obligation to meet with and provide information to persons under other authorities.

7. Finally, the public is entitled to some general guidance as to the kinds of informational materials that will be available for use in conjunction with the public participation program. Although the character of these clearly should not be specified in regulations, the public is entitled to know that the Forest Service intends that these materials be designed to encourage public understanding and involvement, that they summarize complex issues, that they present alternative courses of action and their estimated consequences and, above all, that they be clearly written.

To resolve these points, we propose the following new wording, for inclusion instead of the existing 219.6:

"219.6 *Public participation*

(a) Land and resource planning determines how the public lands of the National Forest system are to be managed. Therefore, it is Forest Service policy that the public have the opportunity to participate and become involved throughout the planning process and that plans at every level consider the issues and concerns raised by the public. The objectives of public participation are to: Insure that the public understands Forest Service programs and proposed actions, and that the Forest Service understands public concerns; assure that no significant decisions are made without consultation with interested and affected segments of the public; assure that Forest Service actions are responsive to the maximum extent feasible to public concerns; and demonstrate that public concerns are evaluated and considered.

(b) As used in this section, public participation activities include public hearings, meetings, conferences, seminars, workshops, tours and similar activities scheduled and held to obtain comments from the general public and specific "publics." It also includes solicitation of written comments from individuals and groups.

(c) The responsible Forest Service official shall use public participation throughout the development, revision, and significant amendment of plans. Public participation activities as defined in (b) above should be appropriate to the level of planning, geographic area or areas, and people involved. Means of notification should be appropriate to the level of planning. Activities which unreasonably inhibit the public or the Forest Service from freely expressing views because of onerous legal requirements or the necessity for technical qualifications on the part of participants should be avoided. In no case should public hearings be the only form of public participation used. Public participation activities should be scheduled at times convenient to the public. Informational materials provided during public participation should be clearly written, should summarize complex technical materials in a manner appropriate for public and media uses, and should be designed to encourage the public to participate in significant decisions, particularly where alternative courses of action are proposed. When documents are summarized, the location of the full document should be noted. Significant issues that are to be the subject of decisionmaking should be stressed. Whenever possible, the social, economic, and environmental consequences of proposed decisions should be clearly stated.

(d) Public participation activities shall be initiated by media notice which includes the following information:

(1) Description of the proposed planning action;

(2) Descriptions of the geographic area to be planned with maps if appropriate;

(3) The issues expected to be discussed;

(4) The kind and extent of public participation to be used;

(5) The times, dates, and locations scheduled or anticipated for public meetings;

(6) The name, title, address, and telephone number of the Forest Service official who may be contacted for further information; and

(7) The location and availability of documents relevant to the planning process.

Notice of subsequent public participation activities shall include, as a minimum, a statement of the issue(s) to be discussed and the general nature of the public response desired. Such notice shall be given directly by U.S. mail or other means to any individual or group who has requested direct notification and by any other appropriate media notice. With regard to notice of any public participation activities, publication as a legal notice

shall not be acceptable as the sole means of public notification.

(e) Public participation activities in the preparation of a draft environmental statement for planning shall begin with the publication of a notice of intent to prepare a draft environmental impact statement in the Federal Register. After this publication, all public participation activities for land and resource management planning, including those required by the National Environmental Policy Act, shall be conducted simultaneously.

(f) Public notice will be given at least 30 calendar days prior to activities associated with the development of national or regional plans. Public notice will be given at least 15 calendar days prior to activities associated with forest plans. Any notice requesting written comments on national and regional planning will allow at least 60 calendar days for responses, and on forest planning will allow at least 30 calendar days for responses.

(g) In the preparation of forest plans, the Forest Supervisor shall schedule public participation activities as a minimum at the following points in the planning process: (1) At the beginning of the planning effort as required in (e) above; (2) after completion of the inventory and assessment process and prior to the development and selection of alternatives; and (3) prior to the selection of the preferred alternative.

(h) A list of individuals and groups known to be interested in or affected by the plan shall be maintained. They shall be notified of public participation activities.

(i) The responsible Forest Service official or his representative shall attend all Forest Service public participation activities.

(j) All scheduled public participation activities shall be documented by a summary of the principal issues discussed, comments made, and a register of those in attendance. In addition, the plan shall contain written material demonstrating that the significant issues raised during public participation have been analyzed and evaluated as required in 219.9(a) and summarizing the Forest Service's response to them.

(k) Copies of draft and approved plans shall be reasonably available for public review as follows:

(1) Renewable Resource Assessment and Renewable Resource Program shall be available at national headquarters, each regional office, each Forest Supervisor's office, and each District Ranger's office;

(2) The regional plan shall be available at national headquarters, at the regional office and the offices of contiguous regions, at each Forest Supervisor's office of forests within and contiguous to that region, and at each District Ranger's office in that region;

(3) The forest plan shall be available at the regional office for that forest, at that Forest Supervisor's office and the Forest Supervisor's offices contiguous to that forest, at each District Ranger's office in that forest, at those District Ranger's offices in other forests that are contiguous to that forest, and at the county or court houses or public libraries in the counties (or similar government units) where the forest is located.

(4) For public information purposes, copies of the above plans may be made available at other convenient locations.

(l) Supporting documents to plans shall be available at the office where the plan was developed.

(m) Upon issuance of a draft environmental impact statement on a forest plan, revision or significant amendment, and concurrent with the public participation activities under paragraph (g) of this section, the public shall have a 3-month period to review the statement for the proposed forest plan, revision or significant amendment. During that time additional public participation activities will take place to review the actions proposed in the draft environmental impact statement.

(n) Fees for reproducing requested documents may be charged according to the Forest Service schedule for Freedom of Information Act requests (7 CFR 1.1 et seq., Appendix A).

(o) Compliance with the formal public participation requirements of this section does not remove the requirement for the responsible Forest Service official to meet with, or supply relevant information to, interested parties."

219.7 Coordination

There is a major concern at present about the real or apparent lack of coordination among government programs. Proliferation of programs at the federal, state, and local levels has led to duplication, conflicts in agency missions and, sometimes, contradictory efforts by public agencies. In no area are these problems more evident than in land use planning and management. Recent federal legislation, for example the Coastal Zone Management Act of 1972, section 208 of the Clean Water Act of 1972, and the National Environmental Policy Act, attempt to mediate and resolve such conflicts.

Although governmental coordination was not a major concern in deliberations on future National Forest management, Congress did speak to this issue. A major finding of RPA/NFMA (section 2(2)) is that the public interest will be served by the Forest Service developing, "in cooperation with other agencies," a national renewable resource program. There is also a requirement, transferred from section 5 of the original RPA to the section 6 on National Forest planning of RPA/NFMA, calling for coordination of Forest Service unit (National Forest) planning with other federal, state and local governments. The Conference Report (p. 27) states that the conferees "anticipate that the regulations * * * will specify * * * the manner in which the expertise of affected state agencies will be obtained and used in the preparation of plans * * *"

As we indicated in our discussion of interdisciplinarity, we feel that coordination with other levels of government can be a major factor in the successful completion, approval, and implementation of any plan. The benefits of close coordination with state agencies, for example, were made clear to us at several locations. The apparent success of the regional planning effort in Alaska is a prime example.

Federal land managers, including those of the Forest Service, recognize the threats to the lands they manage resulting from the failure of governments to coordinate their actions. In a study still underway by the Conservation Foundation, such managers identified the expansion of small communities within or near their borders as the most serious threat to the purposes of the unit in their charge. The impacts of such development include problems such as water and air pollution, destruction of wildlife habitat and interference with wildlife migration routes, aesthetic blight, and constant demands for federal lands to provide community facilities. However, the same study showed, through documented field interviews, that federal "field level managers have a relatively low level of understanding and interest in such planning efforts as Section 208 Areawide Wastewater Management, Coastal Zone planning and State Comprehensive Outdoor Recreation Plans. These planning processes appear to be useful mechanisms for resolving conflicts and recognizing cooperative management opportunities." It is painfully clear that uncoordinated planning by different levels of government that fails to consider mutual goals and policies is a major cause of threats to federal lands.

Although coordination will not, in itself, resolve these problems, it will provide the framework within which they can be identified and discussed, and through which alternatives for their resolution can be developed.

The proposed regulations require that planning be coordinated with other governmental entities and that responsible Forest Service officials "shall consult systematically and as often as appropriate" with such entities. There is also a requirement that notice of intent to prepare or revise a plan shall be given through the A–95 State Clearinghouse process. Consultation must be documented in the record of the plan. Beyond these very minimal requirements, the scope and nature of the coordination effort is left entirely to the discretion of the responsible Forest Service official.

It is our opinion that the draft regulations for coordination are not adequate. They neither meet the intent of Congress nor provide a clear set of requirements that will assure an optimum coordination process on the part of the Forest Service. The proposed regulations require little more than a mutual review of plans. We feel that the proposed regulations neither allow other governmental units to understand how they can become involved in Forest Service planning nor require the Forest Service to make more than a *pro forma* effort at real coordination. Although extensive coordination could possibly be accomplished under the proposed regulations, it is not required nor are its minimal elements spelled out.

This deficiency is all the more serious in light of the apparent legal barriers against state officials serving on interdisciplinary teams. As we have stated, we would much prefer to see state agency personnel actually serve as members of planning teams. Although we propose a strategy to avoid the problems that are created by the absence of such service, the strategy is awkward and untested. Almost all comments on the regulations from state agencies indicated a desire to have their personnel serve on interdisciplinary teams. We feel that the goals of RPA/NFMA would best be achieved by this alternative and we urge the Forest Service to push to put it into practice.

Finally, it has been brought to our attention that these regulations represent an excellent opportunity to coordinate certain actions within the Forest Service, particularly the handling of administratively designated special purpose areas such as research natural areas, geologic areas, botanic areas, etc. The procedure for designation of such areas is now included in the Forest Service manual. We agree with the proposal that designation of such areas be considered in the planning process and such designation be made a part of the regulations.

Throughout our discussion on this coordination we have consistently maintained that the regulations must spell out standards that will promote a positive, constructive interaction between the Forest Service and other federal agencies and state and local governments. These minimum standards should include:

1. A clear statement of the elements of coordination and an obligation that the responsible Forest Service official:

—Be aware of the objectives of other federal, state and local governments as expressed in plans, policies, etc.;

—Assess mutual impacts of these;

—Determine how plans can deal with the issues identified;

—Where conflicts are identified, develop and discuss the alternative programs or policies which might contribute to their resolution.

2. A positive requirement that state agency representatives or other qualified persons be involved and consulted as the interdisciplinary team executes the planning process. If state representatives cannot be appointed to teams, then some other mechanism must be established to provide the desired link. As indicated in the proposed regulations such consultation should be documented in the record of the plan.

3. Although A–95 notification with subsequent coordination allows for notice to be given to state and local governments of the initiation of planning, it is not a useful vehicle for effecting real, ongoing communication between different levels of government. Therefore, we suggest that the regulations require the responsible Forest Service official to seek from the Governor of each state appointment of a designee who would then, on the Governor's behalf, coordinate state and local government input into each plan. The designee would be responsible for the work of the advisory mechanism proposed in item 2 preceding. The requirement should make clear that the Forest Service desires either an official with natural resource experience, such as the chief officer of the appropriate state natural resource agency, or the state planning officer if more appropriate in a given state. While no Governor can be required to appoint such a person, the important point is that the person would be responsible for notifying state agencies and local governments of the Forest Service planning effort and for coordinating their input into the plan.

4. The regulations should require that, in the preparation of plans at each level, the Forest Service show evidence that it has considered the plans, programs, and policies of other units of government which effect national forest management. Non-federal plans and policy documents to be considered should include: Local and/or state land use plans; state economic development or growth plans; state population and growth profections; state transporation plans; state wildlife plans; state comprehensive outdoor recreation plans; section 208 areawide waste treatment plans; state coastal zone management plans; and state energy plans. The forest plan should reflect the fact that the interdisciplinary team studied the relevant state or local plans, policy, and program documents and used, where possible and appropriate, material from them. Without such a requirement, there is no assurance that other plans will be considered.

5. The regulations should insure that coordination, as with public participation, takes place at a certain minimum number of critical times during the planning process. As the regulations stand now, consultation shall take place "systematically and as often as appropriate." Such a guideline is too discretionary. We suggest that, as a minimum, the opportunity for coordination be required (1) at the beginning of the planning process, (2) after issues and opportunities for management are identified and prior to the development and selection of alternatives, and (3) prior to the selection of the preferred alternative.

6. The private lands that exist intermingled with National Forest lands throughout the systme pose a special coordination problem. The goals of the owners of these lands and the management practices followed can have a major impact on National Forest lands. The reverse is, of course, also true. Therefore, it would seem to be desirable that a special effort be made in conjuction with forest planning to identify the goals and plans of the owners of intermingled lands and, to the maximum extent feasible, coordinate management acitvities on the two classes of ownership.

7. A provision should be included calling for coordination within the Forest Service in the establishment of administratively designated special purpose areas.

8. Finally, the requirements for coordination should be reiterated at appropriate locations in conjunction

with the requirements on forest planning (219.8 and 219.9). Such repetition would clarify the full intent of the planning process and would strengthen its integrity.

In order to incorporate these provisions, we recommend that the following material be substituted in its entirety for the existing 219.7:

"219.7 *Coordination of public planning efforts*

Efficient management of the resources of the National Forest system requires that planning be thoroughly coordinated among all levels of government, including state and local jurisdictions, and multi-county and multi-state bodies. Such coordination is necessary in order to insure wise use of regional and local resources and to insure, consistent with requirements of federal law, that governmental objectives, policies, and programs for management of those resources are compatible to the greatest extent possible. Therefore, the Forest Service shall maintain ongoing coordination of its national, regional, and forest planning with the equivalent and related planning efforts of state, local and other federal government agencies and with Indian tribes.

(a) The responsible Forest Service official, through the interdisciplinary team, shall coordinate Forest Service planning with land and resource management planning processes of other affected public entities, and Indian tribes.

(b) The purpose of coordination is to insure that plans at every level in the Forest Service include:

(1) An awareness and discussion of the objectives of other federal, state, and local governments and owners of intermingled private lands as expressed in their plans and policies;

(2) An assessment of the mutual impacts of these plans and policies;

(3) A determination of how each Forest Service plan should deal with the issues and impacts identified; and

(4) Where conflicts are identified, a presentation of the alternatives for their resolution.

(c) The responsible Forest Service official shall give notice of the preparation or revision of a forest plan along with a general schedule of anticipated planning steps to the State Clearinghouse (OMB Circular A–95) for circulation among state agencies. The same notice will be mailed to all Tribal or Alaska Native leaders to the extent Indian Reservations or Alaskan Native corporations are impacted, and to the heads of county boards for the counties that are involved. These notices shall be issued simultaneously with the public notice required in section *'219.6(e)'*.

(d) In order to facilitate state and local government participation in the planning process, the Chief of the Forest Service shall:

(1) Ask the Governor of each state or territory to designate a single official of that state to serve as the contact person for the Forest Service. In seeking designation of a state official, the Chief shall specify that the Forest Service desires that such appointment shall be either an official with natural resource experience, such as the chief officer of the appropriate state natural resource agency, or an official with responsibility for statewide planning if such appointment is more appropriate to a given state. Contacts with state and local governments relating to the National Assessment, National Program, and regional plan shall be coordinated through the designated state official, and state inputs into those planning activites shall be coordinated by that person. In the case of forest plans, contact shall be through the designated state official or through a person designated to serve in his stead.

(2) In the case of forest plans, ask that the Governor or his designee specified in (1) above appoint appropriate state and local government representatives to participate with the interdisciplinary team in coordinating the input of state and local governments to the forest planning process.

Note: This lanaguage becomes unnecessary if it is possible for state personnel to serve as members of interdisciplinary teams.

(e) In the development of forest plans, the Forest Supervisor and his interdisciplinary team shall meet with the designate state official (or his designee), state advisory persons, and representatives of other federal agencies and Indian tribal governments at the beginning of the planning process to develop procedures for coordination. As a minimum, the opportunity for such conferences shall also be required at the following additional times: after issues and opportunities for management have been identified and prior to the development and selection of alternatives; and prior to the selection of the preferred alternative. Such conferences may be held in conjunction with other public participation activities, provided that the opportunities for other governmental officials to participate in the planning process are not thereby reduced.

(f) During the planning process, the responsible Forest Service official shall conduct an inventory, appropriate to each given level of planning, of multi-state, state, multi-county, and local planning and land use regulatory activity. This inventory shall include, but not be limited to, plans affecting renewable natural resources and minerals, recreation, community and economic development, land use, transportation, wildlife, growth, water and air pollution control, and energy. Plans at each level shall document this inventory and discussion of the plans of other entities. Where state and local plans contain population or economic growth projections, this discussion shall specifically analyze these and show their appropriateness, or inappropriateness, for use in meeting the requirements of 219.9(c)(3)(viii). The discussion shall be adequate to meet the purposes described in *'219.7(b)'* above.

(g) In the development of forest plans, the responsible official shall, to the extent feasible, notify in the manner required in (c) above the owners of lands that are intermingled with, or dependent for access upon, National Forest lands and on which management is being practiced similar in character to that being practiced on adjacent National Forest lands. He shall then coordinate, to the extent feasible, his planning activities with these owners. The results of this coordination shall be included in the plan as a part of the inventory required in (f) above.

(h) In developing the forest plan, the responsible Forest Service official shall seek input from other federal, state, and local governments, universities and private research organizations in resolving management problems identified in the planning process and in identifying areas where additional research is needed. This consultation shall be included in the discussion of the research needs of the forest being planned.

(i) The responsible Forest Service official, through the interdisciplinary team, shall coordinate forest planning activities with the efforts of the appropriate forest and range experiment station to identify and study lands meriting consideration for designation as research natural areas, geologic areas, botanic areas, or other special purpose areas. Such coordination shall include at least obtaining recommendations from the station as to areas that should be identified and protected pending study for potential designation.

(j) A continuing program of monitoring shall be carried out that includes consideration of the effects of national forest management on land, resources and communities adjacent to or near the National Forest being planned and the

effects upon national forest management of activities on nearby land managed by other federal or governmental agencies or under the jurisdiction of local governments."

In addition, we suggest certain changes in sections 219.8 and 219.9.

In 219.8, insert a new paragraph (c) and reletter the remainder of the section as follows:

"(c) *Intergovernmental coordination.* The Forest Supervisor shall contact multi-state, state, multi-county, county, and other local agencies responsible for various planning, development and regulatory programs including, but not limited to, water quality, pest management, recreation, air quality, community development, land use regulation, energy, wildlife, and transportation. The plans, policies and programs of these agencies will be analyzed for their relevance to the forest plan. The Forest Supervisor will systematically consult with these agencies, through the advisory committee, in the development of the forest plan."

In 219.9, revise the introductory language by adding the phrase "and other applicable statutes" at the end of the first sentence and by removing the word "generally" from the second sentence.

In 219.9, revise (a) so that the first sentence reads as follows:

"(a) *Identification of issues, concerns and opportunities.* Public issues, management concerns, and resource use and development opportunities identified through public involvement activities and intergovernmental coordination activities will be analyzed continually in the planning process by the interdisciplinary team."

In 219.9(b) add a new numbered paragraph (4) and renumber the remainder as follows:

"(4) The plans and programs of other federal agencies and the plans, policies and programs of multi-state agencies, state, and local governments."

In 219.9(c)(3) add a new numbered section:

"(xiii) lands meriting consideration for designation under special administrative classification, such as research natural areas, geologic areas, botanic areas, etc."

In 219.9(c) add a new numbered paragraph (4) and renumber the remainder:

"(4) Informational needs must include the plans of other federal agencies and those of state agencies and local jurisdictions relating to resource management, land use, and community development."

In 219.9(e)(2) add a new numbered section (v):

"(v) provision for lands administratively designated as special purpose areas or requiring further study for potential designation such as research natural areas, geologic areas, botanic areas, etc."

In 219.9(i) add a new paragraph (4) and renumber the remainder:

"A description and analysis of the policies, plans, and programs of other federal agencies, multi-state agencies, state, multi-county agencies, and local jurisdictions likely to affect or be affected by National Forest management activities."

219.8 Forest Planning Procedure

This section of the draft regulations is the first of three describing the activities to be carried out as land management plans are developed for each national forest (p. 12). It spells out the planning procedure, that is, the major actions that must be taken and the procedural requirements that must be met as a forest plan is prepared. The section specifies that the Forest Supervisor is responsible for preparation of the plan and that the plan is to be developed by an interdisciplinary team appointed by, and responsible to him. It specifies that the interdisciplinary team shall develop the plan in a manner consistent with the National Environmental Policy Act and that a draft and final environmental impact statement will be prepared for each forest plan, revision, and amendment with significant environmental impacts. Requirements for administrative review, conformity, revision, and amendment are also spelled out.

We consider that the planning procedures outlined in 219.8 are generally satisfactory. The procedures proposed are rational and lay out, in broad terms, the major responsibilities and actions that must be taken. We do, however, recommend certain minor changes in wording. These include:

1. Reword the first sentence of 219.8(b) to read:

"Records shall be maintained that support environmental assessments and alternative plans made by the team and decisions made by the Forest Supervisor throughout the planning process."

2. See new 219.8(c) proposed on p. 80.

3. Reword 219.8(e)(1) as follows:

"(1) Approve the transmittal, which may become effective 30 days after the date on which the final environmental impact statement is filed with the Environmental Protection Agency, and attach to the plan a statement documenting approval; or"

4. Reword 219.8(f) as follows:

"(f) *Administrative review.* For purposes of administrative review pursuant to 211.19 of this title, the approval or disapproval of the plan, revision, or significant amendment, shall be the only decision subject to review. The period for submission of a notice of appeal shall run from the date of submission of the final environmental impact statement to the Environmental Protection Agency."

5. In 219.8(i) delete the word "In" at the beginning of the last sentence and capitalize "The."

219.9 Forest Planning Process

This section of the regulations provides guidelines for the conduct of the planning process at the forest level (p. 12). Since it provides the framework for making land management decisions we believe that the various requirements are as important as the specific resource management standards in the section to follow.

In general, 219.9 calls for a planning process that is consistent with the various requirements of NEPA and RPA/NFMA. It calls for the identification of public issues, for specification of objectives and "planning criteria," for formulation and comparative evaluations of mutually exclusive land management alternatives, for selection of a preferred alternative, and finally for monitoring the outcome of management actions to "determine how well the objectives of the forest plan have been met."

We believe that these several steps are generally consistent with planning methods in the public sector. The planning process described has the potential to ensure that interdisciplinary consideration of all resources uses is achieved. It also provides for an unprecedented degree of public participation throughout the whole planning process.

We gave advice to the Forest Service staff on the technical and scientific aspects of the planning process as the draft regulations were developed. Some of this advice is reflected in the proposed regulations and some is not.

We believe that the draft regulations have particular deficiencies in the following areas:

1. The role of public participation is not adequately clarified. Frequent reference is made to public participation in the planning process, but its function is not adequately defined. Indeed, 219.9(a) and (b) appear to suggest that planning and decisionmaking will be controlled and guided by the requirements of achieving a political

consensus at the forest level. We do not believe this was intended, nor do we believe that public participation should be substituted for objective analysis of management alternatives directed toward maximizing the public benefits. A clear, positive statement of policy is needed to guide the interdisciplinary team's use of information from public participation. We have attempted to provide such policy guidance in our proposed language for 219.6(a). We recommend that (a) and (b) of 219.9 be revised to reflect this guidance.

2. The forest planning process should be related to the RPA Assessment and Program. Section 6 of RPA/NFMA clearly establishes that the forest plan is an element of the National program, which in turn is derived from the Assessment. Section 219.9 does not appear to present a planning process or method required to provide the information needed for the Assessment and Program. As an example, 219.9(e)(1) requires that at least four alternatives be formulated and evaluated; only two of these have any relationship to the National Program. Sections 219.9(f) and (g) make no reference to the RPA Assessment and Program at all. Guidelines, methods of analysis, and criteria are needed that are consistent with the information and analytical requirements of the RPA Assessment and Program.

3. Planning objectives should be specifically stated. As it stands, 219.9 provides only indirect, or at best fuzzy, guidance on the primary objective to which the planning effort is directed. If we were planners operating at the forest level, we would look to the regulations for an operational objective to govern the formulation and evaluation of land management plans. None is to be found in the proposed regulations—only a statement that criteria will be prepared throughout the planning process. On several occasions we expressed our concern about this deficiency. We repeat advice given earlier: the planning process should be directed to achieving a level and mix of resource services that maximizes public benefits, subject to technical, environmental, administrative, and budgetary constraints.

4. The role and function of economic analysis should be clarified. Earlier we have pointed out the importance of economic analysis to the RPA/NFMA planning process. We stressed that proposed management practices on the National Forests must be subjected to economic analysis and that such analyses are important in the evaluation of alternatives. The Forest Service needs to clarify in 219.9 how such economic analyses are to be used in decisionmaking.

5. The inventory section (219.9(c)) has certain deficiencies. It enumerates inventory and information requirements and appears somewhat distorted by specific mention of several items required or implied by the language of NFMA. We have no quarrel with their inclusion. There is no equivalent mention, however, of timber type, volume and growth rate, nor of the range resource, or habitat for other than selected animal species. We doubt that all readers of the regulations will understand that these are sufficiently included under "existing plant life" (219.9(c)(2) (iii)). Accordingly, we suggest a more explicit statement.

In the past, data needed for management of individual resources frequently were collected through separate inventories by the functional units concerned. The present need for additional and more detailed inventory data to be used both in interdisciplinary planning and as a baseline in monitoring will call for marked changes in these past procedures. We believe it will be technically feasible and administratively desirable to devise single or combined surveys to gather much of the vegetation data needed for 219.9(c). The methods by which this is done, however, are neither well developed nor appropriate to regulation. Hence, their elaboration is left to the Manual or technical handbooks.

6. Several important provisions for meeting the requirements for diversity in RPA/NFMA are included in 219.9. Section 219.9(c)(2) requires that inventories provide "* * * quantitative data for determining species and community diversity." Since §§ 219.9(f)(3)(vi) and (vii) require an historical analysis of diversity compared to diversity in unmodified natural communities, the inventory data will have to include information on ecological dynamics as well as an analysis of the effects of primative and modern man on trends of ecological succession. We believe this inventory requirement is adequate, considering the state of the art of diversity measurement.

The draft regulations require that each alternative formulated include an analysis of its effects on diversity. They require that the analysis be related to multiple use objectives and to suitability and capability of the land. We believe that § 219.9(e)(2)(vi) should be clarified and strengthened.

A requirement that changes in diversity be assessed is contained in § 219.9(f)(3)(vi) and (vii). We believe the draft regulations are adequate in requiring analysis of how each alternative affects diversity, and of how the proposed changes relate to natural dynamic ecological processes. The specific reference to tree species diversity in subsection (vii) is desirable at this point because it insures that contemplated type conversions will be studies on both forest and range lands. Forest type conversions are also covered in our new *'219.10(a)(6)'*, but we believe the repetition is desirable.

Diversity is not specifically mentioned § 219.9(g) and (h). However, the interdisciplinary team is required to evaluate significant physical, biological, economic, and social effects. Diversity is certainly one of the significant biological effects, and it may be desirable to indicate clearly which effects are to be evaluated. Therefore, we propose that a reference to the physical biological, economic, and social effects listed in subsection (f)(3) be made.

7. The section on formulation of alternatives (219.9(e)) establishes standards for designing the set of alternative land management plans, one of which will be slected as the preferred alternative. The proposed wording has several deficiencies. First, the alternatives that must be formulated are incommensurable since each is designed with a different set of criteria. There is no logical relationship among the alternatives. Second, only one alternative must be consistent with the RPA Program goals for the unit. If the preferred alternative (forest plan) is to be a logical, consistent element of the RPA Program, *all* alternatives must be consistent with the regional plan.

In the following comments, we provide specific recommendations for changes in the proposed regulations. To an extent, these are responsive to the deficiencies noted above. However, the development of regulation language which fully addresses the above points is beyond our responsibilities. That is a task for the Forest Service staff.

Changes recommended are:

1. See proposed change in § 219.9(a).

2. In § 219.9(b) revise (4) as follows and add a new section (5):

"(4) The ecological, technical and economic feasibility of management alternatives; and

(5) The resource management standards and guidelines found in 219.10 of this part."

3. See proposed additional new subsection for § 219.9(b).

4. Delete the present § 219.9(c)(2) and replace with the following:

"(2) Inventory data must be of a detail appropriate for the management decisions to be made and include at least the following:

(i) Geology and mineral characteristics; (ii) soils, their productivity and behavior under use: (iii) natural water occurrences, including quality and quantity, and wetlands, and flood plains; (iv) existing plant life, including maps of actual and potential plant communities, quantitative measurements of occurrence and condition of timber species, quantitative estimates of range condition and trend, forage availability, and the capability of each site; (v) existing fish and wildlife; (vi) habitat conditions for management indicator species; (vii) existing recreational facilities; (viii) quantitative data for determining species and community diversity; and (ix) threatened and endangered plant and animal species."

5. In § 219.9(c)(3) reword (i), (vii), and (xi) as follows:

"(i) Climatic, geologic, soil hazards, wildfire potential and major potential insect, disease, and other pest problems;"

"(vii) Location and extent of existing mineral claims, and known potential mineral and geothermal resources;"

"(xi) Fire history and effects of fire exclusion and management opportunities;"

6. See proposed new subsections 219.9(c)(3)(xiii) and 219.9(c)(4).

7. In 219.9(d) revise the wording of (1), (3), and (5) as follows:

"(1) The opportunities for providing on a sustainable basis alternative levels and mixes of various goods, services, and uses. Such an assessment shall analyze the productive capabilities of the area under alternative assumptions as to the intensity of management practices and expenditure levels. The assessment of management opportunities shall be consistent with the scope, procedures, and assumptions of the National Assessment required under section 3 of RPA;"

"(3) Projections of public demand and price trends for the various goods, services, and uses for the period covered by the forest plan. To the extent possible, demand will be assessed as a price-quantity relationship;"

"(5) Technical and economic feasibility of providing the levels of goods, services, and uses assigned to the forest by the regional plan and of meeting public demand."

8. In § 219.9(e) rewrite the introductory language and rewrite (1) as follows:

"(e) *Formulation of alternatives.* Based on the analysis of the management situation, a set of management objectives will be developed to guide the formulation of alternative plans. These objectives will provide a statement of the purpose of the actions proposed in each alternative. A reasonable range of alternative land management plans will be formulated by the interdisciplinary team and described in draft and final environmental impact statements.

(1) Reasonable range of alternatives. The alternative land management plans shall be formulated to provide alternative levels and mixes of goods, services, and resource uses for each of several alternative expenditure levels, provided that: (i) Each is capable of being chosen as the selected alternative; (ii) the alternatives include a no-change alternative which will represent existing levels of resource inputs and outputs; (iii) the alternatives provide for varying degrees in the elimination of backlogs of needed treatment for the restoration of renewable resources; and (iv) the alternatives are capable of supplying the range of goods, services, and resource uses allocated to the unit in the regional plan. The range of goods and services allocated to the unit must be consistent with the resource production capability of the unit as determined in the analysis of the management situation described in § 219.9(d)."

9. Rewrite § 219.9(e)(2)(iv) as follows:

"(iv) An analysis of the changes in diversity of plant and animal species and communities, the relation of those changes to capability and suitability, and their relation to achievement of overall multiple-use objectives."

10. See proposed new § 219.9(e)(2)(v).

11. Substitute the following wording for § 219.9(f) in its entirety:

"(f) *Estimated effects of management alternatives.* The physical, biological, economic, and social effects of implementing each alternative shall be estimated and displayed. Estimation of effects will involve at least:

(1) Expected changes in the physical and biological conditions including but not limited to: (i) Soil productivity and plant life; (ii) water quantity and quality, flood plains and wetlands and watersheds; (iii) air quality; (iv) esthetic values; (v) fish and wildlife; (vi) anticipated diversity of plant and animal communities compared to that diversity existing in the area being planned and to the diversity which might be expected to occur under natural forces unaffected by people; (vii) diversity of tree species in relation to that existing and that expected to occur on surrounding areas of similar soil; and (viii) the adverse effects on the human environment which cannot be avoided.

(2) Expected changes in economic and social conditions including but not limited to: (i) Local employment, payrolls, and income, direct and induced; (ii) revenue sharing with local governments; (iii) receipts to the Federal Treasury and capital improvements on the National Forest provided by users; (iv) resource commitments that are irreversible; (v) the relationship between local short-term use of the National Forest and the maintenance and enhancement of its long-term productivity; (vi) required local government services; (vii) prices for and supply of goods and services; (viii) economic stability; (ix) income from property yield and income taxes collected by state and local governments; (x) flow of resources from other lands; (xi) incidence of plan costs and benefits among affected groups; (xii) population in terms of composition, structure, and civil rights; and (xiii) effects on prime farmlands in the area surrounding the forest.

(3) Expected direct benefits and costs of the alternative expressed in present value terms computed with an appropriate interest rate including, but not limited to, the produced goods and services, administrative costs, and the protection and, as appropriate, enhancement of resource values. Direct and indirect benefits and costs will be estimated in accordance with standards and practices for economic analysis established by the Chief, Forest Service. Benefit values shall be based, where possible, on willingness to pay in an actual market. Physical outputs shall be reported for all goods and services provided. Capital investments and operating costs shall be reported separately and shall be charged proportionately to resource outputs which will be realized. Estimated costs shall include the value of resource opportunities foregone.

(4) A benefit-cost analysis including but not limited to (i) the values and costs identified in (2) and (3) above; (ii) the value of existing capital assets, including land, at the beginning and end of the period covered by the plan; and (iii) an economic efficiency indicator, such as benefit/cost ratio or estimated present net worth."

12. In § 219.9(g) reword the first sentence as follows:

"(g) *Evaluation of preferred alternatives.* The interdisciplinary team will evaluate the significant physical, biological, economic, and social effects of management alternatives, according

to the planning criteria, including at least those effects listed in subsection (f)(1) and (2) of this section."

13. See proposed new § 219.9(i)(4).

14. In § 219.9(j) revise the introductory language, add new wording to (2)(i), add a new (2)(v), and reword (3) as follows: "(j) *Monitoring and evaluation.* At intervals established in the forest plan, an evaluation must be made to determine how well objectives of the forest plan have been met. Management activities associated with each of the resources planned shall be evaluated through monitoring on an appropriate sample basis. Methods used to monitor consequences of activities resulting from planning and management activities will be consistent with those used to gather inventory data and will be sufficiently accurate to detect change."

"(2)(i) a quantitative estimate of performance comparing actual accomplishments with those that were anticipated in the plan;"

"(2)(v) unit costs associated with carrying out the planned activities as compared with unit costs estimated in the plan."

"(3) Based upon the evaluation reports, the Forest Supervisor will make such changes in management direction, or revisions or amendments to the forest plan as deemed necessary to meet the forest goals and objectives."

219.10 Resource management standards and guidelines

The NFMA is legislation born in controversy over harvest methods and their application on National Forest lands. Debate in both houses was primarily about the degree of statutory prescription of harvesting practices. Although much debate centered on clearcutting, concern was also expressed about other types of even-aged management, about the effects of timber harvest on "fragile" soils and water resources, and hence about the need for management standards.

The resulting legislation describes the results expected rather clearly, and places emphasis on the development of regulations to guide the planning process in achieving these results. Section 6(g)(3) contains the statutory response to the timber harvesting practices that precipitated the controversy.

We have heard and read much about what others believe the details of Congressional intent may have been. Review of the legislative history and discussion with principals and participants in the debates, however, have led us to believe that the chief criteria for evaluation of these regulations should be pragmatic and scientific, rather than narrowly legal. Our analysis is essentially our answer to the questions posed by section 6(g)(3): Do the "regulations * * * specify * * * guidelines * * * for plans * * * which * * *

(A) Insure consideration of the economic and environmental aspects of the various systems of * * * management * * * to provide for outdoor recreation (including wilderness), range, timber, watershed, wildlife, and fish;

(B) Provide for diversity * * *

(C) Insure research on and * * * evaluation of the effects of each management system * * *

(D) Permit increases in timber harvest if * * *

(E) Insure that timber will be harvested * * * only where * * *

(F) Insure that * * * cuts designed to regenerate an even-aged stand * * * will be used * * * only where * * *".

Section 219.10 of the draft regulations establishes standards and guidelines to be met in planning for and managing each of the major renewable resources. The section is long, general in respect to some resources, and very detailed in respect to others. In terms of substantive requirements, it is the most demanding section of the regulations. A major difficulty, not completely resolved in the draft regulations, is presented by our conviction that the resource protection concerns should apply equally to all forest uses, and that interaction among uses and protection of major resources values should be dominant themes.

Elsewhere we have given our reasons why a separate section containing resource standards apart from the discussion of the planning process is acceptable. Such separation may seem to imply that each resource is to be treated without consideration of others. A number of reviewers have seen this as a weakness or have feared that organization by resource use would perpetuate the functional planning of the past. The draft has also been criticized on grounds that the standards and guidelines for each resource appear to have been developed independent of each other with no commonality to tie them together. This criticism has some validity. On the other hand, considerations such as some relating to wildlife and recreation, or the need for continued evaluation of lands for wilderness potential, are specific to individual resources.

Another criticism directed toward this section is the great emphasis placed on timber management. This emphasis, however, simply reflects the heavy emphasis on timber management practices in the legislative history and the Act itself. If the treatment were more limited, or if it were submerged in an integrated fashion with the treatment of other resources, the Forest Service likely would be accused of avoiding NFMA's requirements.

We see no easy solution to any of these criticisms. However, we do recommend certain changes that may minimize the difficulties encountered and better demonstrate the conformity of the section with the intent of NFMA. One change involves cross-referencing the more definitive language we propose for interdisciplinarity in § 219.5. This language makes clear that the interdisciplinary team must consider all resources and must integrate the effects of their management as it evaluates alternatives. Another change is to place a subsection of general provisions at the beginning of § 219.10. These state, first, the requirements applicable to all management activities and, thereafter, those relating to silviculture, protection of soil and water resources, and diversity. All of the latter bear on more than one of the individual resources treated under draft regulations 219.10(a) through (f). A suggested organization of the proposed initial general subsection is as follows:

219.10(a) All resource uses

(a)(1) All management activities.

(2) Choice of silvicultural systems.

(3) Control of openings.

(4) Protection of streams and lakes.

(5) Conservation of soil and water resources.

(6) Diversity.

We wish to emphasize here that it is in this section that we propose that the difficult issue of silvicultural standards be treated. The language that we propose accomplishes, we think, two purposes. First, it makes clear that silvicultrual practices affect the management of all resources and that this fact must be recognized in planning. Second, it provides reasonable additional specificity with regard to silvicultural practices. Although we do not go as far as some might wish us to, we believe the proposed language will provide adequate protection for National Forest resources from the potential damages of unwisely applied silvicultural practices.

Suggested language for our proposed § 219.10(a) and (a)(1) is given below, followed by discussion and suggested language for each of the other five topics to be dealt with in this new section.

Note.—This section will become § 219.11 if our proposed new section on the regional plan is adopted.

"219.10 Resource management standards and guidelines

The standards and guidelines set forth in this section will, as appropriate, be included in the planning criteria, or be applied throughout the planning process. Such application shall be only in a manner consistent with the interdisciplinary requirements of § 219.5.

(a) *All resource uses.* Certain standards and guidelines will apply to all resource uses:

(1) All management activities. All management activities must:

(i) Not allow significant or permanent impairment of the productivity of the land;

(ii) Provide means for minimizing serious or long-lasting hazards from flood, wind, wildfire, erosion, or other natural physical forces, except as these are specifically accepted, as in wilderness;

(iii) Provide means for prevention and reduction of serious or long-lasting hazards from pest organisms. The guiding principles will be those of integrated pest management;

(iv) Assure protection for streams, streambanks, shorelines, lakes, wetlands, and other bodies of water as provided under (a)(4) and (a)(5) below;

(v) Maintain diversity in plant and animal communities and preserve the variety of endemic and desirable naturalized plant and animal species currently found in the area covered by the forest plan;

(vi) Be monitored and evaluated as required in 219.9(j) to assure that activities are carried out in a manner consistent with the protection of soil, watershed, fish and wildlife, recreation, and esthetic values, consistent with the maintenance of timber and range productivity, and consistent with reduction of hazards from insects, disease, weed species, and fire."

(2) Vegetation management practices.—RPA/NFMA requires particular attention to the choice of silvicultural systems, and especially the use of the even-aged system and related harvest methods and operations. Since silvicultural techniques are simply ways of manipulating forest vegetation for a variety of purposes, they are most appropriately treated as a general provision applicable to all uses other than wilderness. Hence, we concur with the recommendations of the Forest Service Task Force on Silviculture concerning the location and wording of the standards and guidelines governing choice of silvicultural systems and related topics.

Direction on the choice of silvicultural systems and cutting methods formerly scattered throughout § 210.10(d) of the draft regulations should be consolidated and moved to the front of § 219.10. Doing so emphasizes that this choice affects all resources on the affected land, not timber alone. The criteria in the present draft regulations follow NFMA in requiring that clearcutting be used only where it is the optimum method (219.10(d)(3)(iv)) whereas other systems, generally, need only be "appropriate" (219.10(d)(3)(i)). This material has been revised to require that *all* silvicultural systems and cutting methods should be the ones best suited for the multiple-use objectives of the area, taking into account all resources involved, together with ecological factors and soil fertility.

In addition, we feel that this section should be written so that it applies to all vegetation manipulation practices regardless of the form of the vegetation (grass, brush, trees, etc.) and regardless of whether the operations are for production of forage for livestock, trees for timber, habitat for wildlife, etc.

Our proposed wording for § 219.10(a)(2) is intended to provide such guidance in all vegetation manipulation:

"(2) Vegetation management practices. When vegetation is altered by management, the methods, timing, and intensity of the practices determine the level of benefits that can be obtained from the various resources. The vegetation management practices chosen for each vegetation type and circumstance will be defined in the forest plan with a display of the alternatives examined and the reasons for the final choices. where more than one vegetation management system will be used in a vegetation type, the conditions under which each will be used will be clearly defined. The choices will be based upon thorough reviews of technical and scientific literature and practical experience, with appropriate evaluation of this knowledge for relevance to the specific vegetation and site conditions. On National Forest land, the chosen alternative will:

(i) Be the one best suited to achieve the multiple-use goals established for the area, including consideration of all potential environmental, biological, esthetic, engineering, and economic impacts, as stated in the regional and forest plans;

(ii) Assure that forested lands can be adequately restocked within 5 years after final harvest, except where permanent openings are created for wildlife habitat improvement, vistas, recreation uses, and similar activities;

(iii) Not be chosen primarily because it will give the greatest dollar return or the greatest output of any one product or service, although these factors shall be considered. Both short- and long-term costs and benefits shall be used in economic analysis rather than immediate or short-term returns;

(iv) In meeting the requirements of *'219.10(a)(1) (ii)'* and *'(iii)'* above, give particular attention to potential effects on residual and adjacent vegetation;

(v) Avoid permanent impairment of site productivity, and assure conservation of soil and water resources in accord with *'219.10(a)(5)'*;

(vi) Provide the desired effects on water quantity and quality, wildlife and fish habitat, regeneration of desired plant species, recreation uses, esthetic values, and resource yields;

(vii) Be practical to use in terms of such factors as administration, costs of sales, transportation, and related considerations; and

(viii) Preserve and maintain species and community diversity as required in *'219.10(a)(6)'*."

(3) Openings created by cutting.—All cutting creates openings. These vary in size, shape, and proximity, depending first, of course, on the silvicultural system and cutting method, but also upon a large variety of other considerations. Examples of the latter are terrain limitations and opportunities, susceptibility to wind damage, roading costs and consequences, snow trapping for increased water yield, watershed protection and wildlife benefits, as well as regeneration of desired species. All of these and others that might be named are wholly local in their applicability. Width rather than area is often the element controlling wildlife use and regeneration of certain species.

Awareness of such diversity seems to have weighed upon the Senate Committee as it regarded public concern as will as its own discussion of the issue of clearcut size because it chose neither to establish nor to require a universal limit on maximum size. The Senate Report noted that "The size of clear cutting units had been a subject of wide public comment and Committee considerations. The Committee expects the Secretary to establish appropriate limits on size of units to be cut based on the best available scientific evidence, management plan goals, and the guides in this bill on overall decisionmaking. The Committee expects the Secretary to write specific guidelines and hold the average size of clearcuts as low as practicable". The section-by-section

analysis stated that "there are established by geographic areas, forest types, or other suitable classifications, the maximum size limits for clearcuts in one harvest operation, * * *".

The NFMA applied this requirement not only to clearcuts but also to "seed tree cutting, shelterwood cutting, and other cuts designed to regenerate an even-age stand of timber * * *" (section 6(g)(3)(F)) but again specified limits, rather than a single limit, to be based upon geographic areas, forest types or other suitable classifications.

We interpret the language of NFMA to mean: (a) Seed tree and shelterwood cutting should be subject to locally adapted maximum size limits for the same reasons clearcutting is, although the limits may well differ, and (b) to be meaningful, the limits must take account of the variety of situations in which cutting will occur. There simply is no scientific justification for establishing any single maximum (or minimum) area limit for the entire nation, nor yet for any region as a whole. In our view, the sole technical purpose of maximum size limits is as an outside safeguard against the unpredictability of natural events and on-the-ground misjudgments or excesses of zeal. That purpose is served only when the limits are made appropriate to particular sets of terrain, soil, climatic probabilities, and vegetation. A single arbitrary value, selected as a compromise, must necessarily prevent or needlessly hamper planning operations at some locations while providing wholly inadequate safeguards to more difficult or hazard-prone situations at others.

The present draft regulations require that each regional plan establish maximum limits for the area to be cut in one harvest operation, according to geographical area and forest type (219.10(d)(3)(vi)). These provisions spell out no less than ten factors that must be considered in setting these limits. Furthermore, the regional plan is subject to the environmental impact statement process.

Again, we emphasize that such limits should be applied to all cutting methods under the even-age system, not to clearcutting alone.

In our opinion, this procedure, although cumbersome, agrees with the evaluation and intent of Congress, as expressed above, and provides the mandated control of cutting limits with flexibility. Paralleling our discussion of choice of silvicultural systems, we recommend that the provisions of § 219.10(d)(3) (v) and (vi) of the draft regulations be transferred to the new prosition indicated as "control of openings" in our outline (p. 98). These provisions are repeated here for clarity and to emphasize where they would fit into our revision of § 219.10:

"(3) Control of openings. when openings are created by the application of an even-aged silvicultural system:

(i) The blocks or strips cut shall be shaped and blended with the natural terrain to achieve esthetic and wildlife habitat objectives to the extent practicable; and

(ii) Individual cut blocks, patches, or strips must conform to the maximum size limits for areas to be cut in one harvest operation established by the regional plan according to geographic areas and forest types. The following factors must be considered in determining size limits by geographic areas and forest types: Topography; relationship of units to other natural or man-made openings and proximity of units; coordination and consistency with adjacent forest and regions; effects on water quality and quantity; effects on wildlife and fish habitat; regeneration requirements for desirable tree species based upon the latest research findings; transportation and harvesting system requirements; natural and biological hazards to survival of residual trees and surrounding stands; and relative total costs of preparation, logging, and administration of harvest cuts of various sizes. The size limits may be exceeded after 30 days public notice and after review by the responsible official one level above the official who normally would approve the harvest proposal. The established limit shall not apply to the size of areas harvested as a result of natural catastrophic condition such as fire, insect and disease attack, or windstorm."

(4) Protection of streams and lakes.—The concern for protection of water quality expressed in RPA/NFMA is addressed at several places in the draft regulations, as discussed in the next pages. Such protection calls for appropriate care in conduct of all management activities over entire watersheds. The strips or zones immediately adjacent to stream courses and lake margins pose particular problems, however. They often have a special importance not only to water quality but to the production of many kinds of benefits. On the one hand, such zones frequently are the most productive of timber and forage; riparian vegetation is critical to several kinds of wildlife; much recreation use is water-oriented; and the most logical and economic transportation routes may follow water courses. On the other hand, improper application of some management activities, or application without greater than normal care within these zones may damage vulnerable stream and lake margins, and degrade water quality.

The problem, then, is to find ways to reap the potential benefits from riparian strips while assuring that no management activity will "seriously and adversely affect water conditions and fish habitat" (NFMA, section 6(g)(3)(E)(iii)).

Specific region-wide prescriptions for treatment of such fixed width strips would inhibit multiple use planning, often for adjacent lands as well as for the strips themselves. Moreover, such prescriptions would invariably lead to many absurdities in application.

Accordingly, we accept the recommendation of the Forest Service Task Force on Silviculture that a strip on either side of all perennial water bodies be designated to receive special consideration in preparing the forest plan and in monitoring its effects. We concur with the Task Force's recommendation that the width of this strip be 30 meters, but emphasize that this is a wholly arbitrary value, proposed solely for administrative guidance. The interdisciplinary team must consider strips of this width but may recommend probibition of, or constraints on activities for less than the 30 meter width, or far more than this width, as particular circumstances dictate.

The purpose of the proposed language that follows is to assure intensive planning for an extremely important fraction of the forest area. No activity is specifically prohibited, but the activities allowed, and the way they are conducted, must be compatible with the values being protected.

"(4) Protection of streams and lakes. During the inventory, planning, and monitoring processes, special attention shall be given to a strip approximately 30 meters wide along both sides of all perennial streams, lakes, and other bodies of water. All management activities within these strips, such as timber harvest, road and campground location or construction, range improvements, or fish and widlife habitat modifications, will be conducted in such a way as to protect these waters from detrimental changes, in compliance with § 219.10(e) (4), (5), and (6), and to the extent that total multiple use benefits exceed costs. Such changes include increases in water temperatures or chemical composition, blockages of water course, or deposits of sediment that are likely to seriously and adversely affect water conditions or fish habitat. The interdisciplinary team will

consider topography, vegetation type, soil, climatic conditions, management objectives, and other factors in determining what activities may be performed within these strips and the constraints to be placed upon their performance in order to assure protection of water quality or other multiple use values. Documentation of the steps taken to meet this requirement shall be included in the plan as required in § 219.9(i)(5)."

(5) Conservation of soil and water resources.—A significant interest during the debate on NFMA was assuring protection of the soil and water resources on National Forest lands. Consequently, the Act expresses strong concern about protecting streams and lakes, assuring the soil productivity will not be impaired, and preventing irreversible damage to soil in the course of management and use.

The draft regulations respond to these concerns at several points. Briefly, inventories of soil and water must be maintained, with attention to special conditions and hazards (219.9(c) (2) through (4)). Analyses of capability and suitability for resource management must consider the levels of use that can be sustained with attention to situations that involve possibility of serious or irreversible damage (219.9(d)). As the interdisciplinary team formulates alternative forest plans, it must estimate their effects, including protection or possible enhancement of soil and water resources, expected changes in soil productivity and water quality and quantity, and relationships between short-term use and maintenance of long-term productivity *'(219.9(f)(1))'*. Finally, "management activities associated with each of the resources planned" must be evaluated on a schedule prescribed in the forest plan. Documentation of measured effects, including productivity of the land, is required (219.9(j)).

The foregoing apply to management of all resources. Two additional requirements (219.10 (d)(3)(D) and (d)(6)(iv)) apply specifically to timber production. A requirement for special planning attention to streamside and lakeside strips, such as proposed immediately above, would provide further safeguards for protection of soil and water at the critical meeting zone of the two resources.

These separate paragraphs represent some redundancy, responding in part to similar redundancy in the act. The separate mention throughout the sequence of inventory, planning, control and follow-up may diminish visibility to casual readers but actually insures that concerns for soil and water are integrated into planning and treat all of the secondary resources they support, rather than being single items on an environmental checklist.

Accordingly, we believe that the cited regulations, viewed in their entirety, form a comprehensive requirement that more than meets Congressional intent. These regulations are indeed open to the familar charge of lack of specificity. On the other hand, nothing would be more futile than attempting specific direction for a myriad of physical situations by regulation; and nothing would be more destructive to responsible multiple use planning than imposing a few simple textbook generalizations or rules of thumb as operational requirements.

In actual practice, maintenance of soil productivity, protection of water quality, and minimizing damage to either entails a large number of site-specific and activity-specific provisions. As a means of consolidating and making visible the numerous requirements cited above, and indicating the mechanisms for application, we propose addition of the following:

"(5) Conservatin of soil and water resources. The analysis, protection, enhancement, treatment, and evaluation of soil and water resources, and their responses under management, as required by § 219.9 (c), (d), (f), (j), and *'219.10(a)'*, will be guided by instructions in official technical handbooks. These handbooks will indicate site-specific and activity-specific practices aimed at avoiding or mitigating damage, and maintaining or enhancing productivity. They will also establish performance standards and tolerance limits for such effects as soil disturbance, erosion, compaction, nutrient losses, stream turbidity, and wetland and flood plain impacts, taking account of applicable federal and state regulations respecting water. These handbooks may be regional in scope or, where feasible, specific to geological or climatic provinces."

(6) Diversity.—The majority of land management activities have some influence on the diversity of species and communities of living organisms. Some of these influences are small and some result in significant changes in presence, abundance, and distribution. As indicated in our discussion of the diversity issue, we believe that RPA/NFMA clearly established the Congressional policy that multiple-use management shall maintain a wide variety of plant and animal species in a variety of communities on National Forest system lands. As we have also indicated, there is a great deal of public concern on this matter. Many feel that diversity alone is the key to acceptable multiple-use management. Although we disagree with this simplistic view, we nevertheless believe it highly desirable to include a section on diversity here where it applies to all land management activities. In this way, it is highly visible to the public who review these regulations, and also to the Forest Service planners who will be responsible for seeing that diversity is "provided for." We also propose that this section deal with the difficulty issue of type conversions by specifying that such conversions may be considered only when they are needed to meet multiple-use objectives and when they are thoroughly justified by appropriate analyses. Because of the importance of the type conversion issue, we suggest that the term "type conversion" be defined in 219.3.

The following language is proposed for § 219.10(a)(6):

"(6) Diversity. Diversity of plant and animal species shall be considered throughout the planning process, and in the selection of a forest plan. Inventories shall include quantitative data which make it possible to assess past and present species and community diversity (219.9(c)(2)). Each alternative considered shall include a determination of how diversity of species and communities will be affected, including discussion of changes in diversity which have taken place, and a comparison of the proposed action to this historical framework (219.9(f)(1) (vi) and (vii)). To the extent practicable the objective shall be to preserve and increase species and community diversity so that it will be at least similar to that which would be expected in an unmanaged area in the region. Reductions in diversity may be considered only where needed to meet overall multiple-use management objectives. Planned type conversions must be justified by a detailed analysis showing biological, economic, and social consequences and the relation of that conversion to natural dynamic processes."

Beyond the need to reorganize substantially the introductory language to § 219.10, other major changes must be made in the section. Section 219.10 contains language intended to meet some of the most difficult and demanding requirements of RPA/NFMA. Therefore, adequate regulations in this section are mandatory. Although the language of the draft regulations is a reasoned approach by the Forest Service to these requirements, in our opinion it often falls short of the specificity necessary to establish appropriate guidelines and standards in these

critical and controversial areas. The following sections of our report summarize our evaluation of these issues and of the requriements of the draft, and lay out our recommendations for new or additional language.

219.10(a) Fish and wildlife resource

At least six different drafts of the Fish and Wildlife section have been available for review and comment over a period of approximately 18 months. As a result the published draft appears to have general acceptance. There are two technical matters which we believe should be changed to further improve this section. These have to do with the concept of "selected species" and with requirements for coordination with the states.

The term "selected species" is introduced in § 219.10(a)(2) and used several additional times in the following paragraphs. The "selected species" concept involves identification of a number of species which are to be the focus of management activities, and which are to be monitored to determine the effects of management. These species are selected because it is never possible to manage an area so that every species will be considered. The species involved fall into two categories. Species in one group are included because of particular interest in them. Endangered species are in this group since they must be considered as primary concerns to meet the requirements of the Endangered Species Act. Species in the second group are chosen because they indicate the consequences of management on other species whose populations fluctuate in some measurable manner with the indicator species.

We do not believe the term "selected species" will be readily identified as a technical term used to characterize these very important species. To make the terminology more precise we propose the term *"management indicator species"* be used in place of "selected species" in sections (2), (3), and (6) of the fish and wildlife section. To accommodate this change and to be more specific about the concept involved, we urge the following wording be adopted in place of the present (2):

"(2) Management indicator species will be identified as concerns for planning, and justification for their selection will be given. These species shall include at least: endangered and threatened plant and animal species identified on state and federal lists for the area of the planning unit; species with speical habitat needs that may be influenced significantly by planned management programs; species commonly hunted, fished, or trapped; and additional plant or animal species selected because their population changes are believed to indicate effects of management activities on other speicies of a major biological community or on water quality. On the basis of available scientific information, the effects of changes in vegetation type, timber age classes, community composition, rotation age, and year-long suitability of habitat related to mobility of management indicator species will be estimated. Where appropriate, measures to mitigate adverse effects will be prescribed."

Coordination between the Forest Service and state fish and wildlife agencies is especially important because of the traditional and legal division of respousibility. State agencies have managed the populations while the Forest Service has managed the habitats which support those populations. Legislative history of RPA/NFMA indicates that Congress clearly envisioned a close state-federal liaison in fish and wildlife management planning (Senate Report).

As we have pointed out, it would be most effective to appoint state biologists to interdisciplinary teams. It is our hope that this will be possible and that, consequently, state wildlife biologists will be appointed routinely as members of interdisciplinary teams. Should it prove necessary to use our advisory committee strategy, we certainly trust that such committees would include state biologists to ensure coordination and mutual understanding of the complex issues involved. In addition, we recommend that (3) and (6) of the fish and wildlife section be strengthened by substituting the following language:

"(3) Biologists from state fish and wildlife agencies and other federal agencies shall be invited to participate in the work of the interdisciplinary team. The forest plan shall be coordinated with the state strategic fish and wildlife plans, to the extent practicable."

"(6) Population trends of the management indicator species shall be monitored and relationships to habitat changes detemined. This monitoring shall be done in cooperation with state fish and wildlife agencies, to the extent practicable."

Consideration of diversity is important in regard to fish and wildlife. Many persons equate high diversity with wildlife abundance, community stability, and biological productivity. Therefore, the diversity requirements here may be a critical public issue, even though scientific support for such simplistic notions may be lacking. The primary diversity requirement in § 219.10(a) of the draft regulations is in (8) which requires that: "Effects of proposed changes in diversity on fish and wildlife will be evaluated." In addition (2) requires that mitigation of adverse effects will be prescribed. Subsection (2), as modified by our recommendation, also requires that effects of management activities on year-long suitability of habitat shall be related to mobility of the management indicator species. This clearly focuses attention on interspersion and juxtaposition of a variety of habitat types, and thus assures additional concern for diversity.

We believe these provisions, with those in our new § 219.10(a)(6), insure that diversity will be given consideration in planning, that steps will be considered to prevent major adverse consequences, and that variety of communities and vegetation types will be assured.

In addition, we recommend that, in the first sentence of § 219.10(a), the word "native" be added after the word "existing." Section 219.10(a) will become 219.10(b) if our proposed new § 219.10(a) is adopted.

219.10(b) Range resource

The laws governing National Forests clearly indicate that rangelands are to be considered as co-equals to forest land. The title of the RPA is "The Forest and Rangeland Renewable Resources Planning Act of 1974." The act to amend RPA, the National Forest Management Act of 1976, reaffirms the national objectives of planning both forests and rangelands for the production of multiple goods and services. While the NFMA tends to be specific in its requirements about timber harvest, silvicultural standards, and other criteria to be used in timber production, the same is not so for rangelands. We believe, however, that Congress intended that the rangelands of the National Forest system be planned with the same care as the forested areas (section 6(e)(1)) and with similar application of multiple-use, sustained-yield concepts.

The draft regulations (219.10(b)) require that the ability of the range to supply long-term grazing and browsing be determined, and that range management systems be prescribed, according to seven "standards or guidelines." These outline how productive ability of rangeland will be included in the planning process.

We believe that these regulations (1) do not provide sufficient guidelines on how such productive ability is to be determined, (2) do not adequately relate forage production to timber, wildlife, and other products from rangelands, (3) do not specify how and when successional stages may be manipulated to meet multiple-use objectives, and (4) do not emphasize that rangeland management, like timber management, directs how other resources may be used.

The current draft regulations lump the commonly accepted measurements used to determine range condition and trend into a single statement in 219.10(b)(1). It appears to us that these vegetation measurements could be incorporated into a general vegetation inventory, with increased efficiency and better integration of animal management (both wild and domestic) with timber, recreation, and other uses that affect the same vegetation resource.

It is technically possible, and we believe administratively desirable, to combine all vegetation inventories, whether for timber, range, wildlife or recreation uses, into a single survey. For the purposes of livestock and wildlife management we believe that at a minimum the inventory should determine, by defined soil units, the present vegetation and the approximate seral stage of the community, the potential plant community, the amounts of usable forage and productive plant cover, and the character or degree of soil disturbance. In addition, trend studies should be established to monitor change in the range plant communities.

We do not think it appropriate to designate specific techniques for study of range conditions and trends. At present, the possibility of uniform improved methods is being studied by three groups: An interagency task force, a committee of the Society for Range management, and a group of western university scientists. As long as the principles indicated above are followed, the Forest Service should be free to select the most appropriate method.

We believe that the regulations can be made more explicit by incorporating the concepts contained in the following alternate language, to be substituted for the present § 219.10(b):

Note.—This section will become 219.10(c) if our proposed new § 219.10(a) is adopted.

"(b) *Range resource.* Rangelands within the National Forest system will be inventoried, planned for, and managed according to the standards and guidelines set forth below:

(1) Rangelands. Each forest plan shall identify lands available, capable, and suitable for grazing and/or browsing by wild, domestic, and feral animals. The procedures and data to be acquired include, but are not limited to, the following:

(i) Range condition and trend studies conducted on each forest during the vegetation inventory as described in § 219.9(c)(2). These data will form the basis for the range management plan;

(ii) Records of actual use by domestic livestock, feral animals, and management indicator species of wildlife, and estimated percentage utilization of key forage species;

(iii) Analysis of vegetation data to determine range capability. This will consider:

(A) An estimate of the current ability of the rangelands to produce suitable food and cover for the management indicator species of wildlife;

(B) An estimate of the present supply of foreage for sheep, cattle, and feral animals; and

(C) An estimate of the potential ability to produce feed and cover for wild, domestic, and feral animals;

(iv) Analysis of range's ability to produce wild, feral, and domestic animals without permanent impairment of the resource will be based upon the condition of the vegetation, statutory and/or administrative withdrawals, characteristics of soil and slope, and accessibility to grazing and/or browsing animals.

(2) Range management systems. Management systems, including the existing system, will be considered in an alternatives analysis as required by § 219.9(f). Each alternative will meet the requirements of *'219.10(a)'* and will include consideration of at least the following:

(i) Grazing mangement systems;

(ii) Methods of altering successional stages for range management objectives, including vegetation manipulation as described in *'219.10(a)'*;

(iii) Evaluation of pest problems, and availability of integrated pest management systems;

(iv) Possible conflicts or beneficial interactions among domestic, feral, and wild animal populations, and methods of regulating these;

(v) Physical facilities such as fences, water points, and corrals, necessary for efficient management; and

(vi) Existing permits, cooperative agreements, and related obligations.

(3) Each management plan will include a mechanism for monitoring range trend in accord with the evaluation requirements of § 219.9(j).

(4) Plans shall comply with laws relating to the use of the range resource, particularly the Federal Land Policy and Management Act of 1976, the Bankhead Jones Farm Tenant Act (50 Stat. 526, as amended), and the Wild Horses and Burros Protection Act (85 Stat. 649).

(5) The economic and social impacts on small communities and the local livestock industry will be evaluated in the selection of alternatives for management."

219.10(c) Recreation resource

Although the legislative history of RPA/NFMA has few comments dealing directly with recreation, the inclusion of recreation among the multiple uses specified by Congress is a reaffirmation of intent to provide recreation opportunities.

Managing for recreation requires different kinds of data and mangement concepts than does most other activities. While recreation must have a physical base of land or water, the product—recreation experience—is a personal or social phenomenon. Although, the managment is resource based, the actual recreational activities are a result of people, their perceptions, wants, and behavior.

The draft regulations for recreation (219.10(c)) state that the Forest Service will provide for resource activities to enhance a broad spectrum of recreational opportunities. This general requirement is then followed by five "standard and guidelines."

We believe that these draft regulations are inadequate in the following respects: (1) They do not sufficiently recognize the *social* and *psychological* aspects of recreation; (2) they do not explictly provide for analysis of the effect of recreational uses on other resources, nor the effects of other uses on the quality and quantity of recreational activities; and (3) they do not show how information about recreation opportunities gained in the monitoring process required in 219.9(j) will be used.

Much of the data necessary for recreation management should be gathered during the inventory and information collection phase (219.9(c)). Some of the people-oriented data such as user identification and interests will be obtained in the identification of issues (219.9(a)) and the analysis of the management situation (219.9(d)). We recommend that specific references to recreation and its data needs be included in these sections of the regulations.

We believe the draft regulations can be improved by substituting the

following language for the present 219.10(c):

Note.—This section will become 210.10(d) if our proposed new 219.10(a) is adopted.

"219.10(c) *Recreation resource.* Management planning will provide for a broad spectrum of dispersed and developed recreation opportunities in accord with identified needs and demands. Planning will be governed by the goals of the regional plan, the general requirements of §§ 219.9 and 219.10(a), and the specific requirements of paragraphs (1) through (7) below:

(1) Each forest plan will identify the lands available, capable, and suitable for recreation.

(i) The physical and biological characteristics that make land suitable for recreation activities will be identified during the inventory process (219.9(c)).

(ii) During the analysis of issues, the recreational preferences and behavior of present user groups and those of the foreseeable future will be used to identify recreation opportunities on the National Forest and associated lands.

(2) The supply of recreational facilities to meet present and future needs in the area surrounding the forest will be appraised.

(3) Following (1) and (2) above, alternatives will be developed to provide a wide array of recreation opportunities responsive to current and anticipated user demands. The alternatives will include consideration of management need, establishment of physical facilities, and regulation of use.

(4) In formulation and analysis of alternative forest plans as specified in § 219.9(e) and (f), interactions among recreation activities and other multiple uses shall be examined. This examination shall consider:

(i) Impacts of the proposed recreation activities on other uses and values;

(ii) Impacts of other uses and activities asssociated with them on recreation opportunities, activities, and quality of experience; and

(iii) Mechanisms for mitigating any undesirable physical and social effects resulting from recreational opportunities.

(5) Development and evaluation of program alternatives under subsections (3) and (4) must be coordinated to the extent feasible with:

(i) Present and proposed recreation activities of local and state land use or outdoor recreation plans, particularly the State Comprehensive Outdoor Recreation Plan; and

(ii) Recreation opportunities already present and available on other public and private lands, with the aim of reducing duplication in meeting recreation demands.

(6) Modification of land ownership patterns to meet present and future recreation needs will be considered.

(7) The overall monitoring and evaluation program (219.9(j)) will include:

(i) Evaluation of changes in, or damage to, other resources resulting from recreation activities, and effectiveness of mitigation mechanisms developed under (4)(iii) of this subsection; and

(ii) Assessment of the adequacy of programs and activity opportunities in terms of present and future use."

219.10(d) Timber Resource

This section presents material relating to management of the timber resource. The issues dealt with here are complex and controversial. We have analyzed them throughly, and have sought assistance from various persons. Although we accept generally the proposed treatment of the timber resource in this section, we recommend greater specificity and some reorganization. This section will become § 219.10(e) if our proposed new § 219.10(a) is adopted.

(1) *Definitions*—As we have pointed out, the definitions of even-aged management, silvicultural systems, and uneven-aged management should be moved to the general definitions section (219.3). To clarify certain ambiquities that have been pointed out, we suggest the following changes:

1. "Average annual sale volume" should be defined.

2. The words "the silvicultural systems that will be used" are not part of timber harvest scheduling and should be removed from the definition.

Finally, all remaining definitions should be moved to an introductory section placed in § 219.10(d)(4).

(2) *Timber producing lands*—Section 6(k) of RPA/NFMA requires that the Secretary "identify lands within the management area which are not suited for timber production considering physical, economic, and other pertinent factors to the extent feasible, as determined by the Secretary, and shall assure that * * * no timber harvesting shall occur on such lands for a period of 10 years." Lands which are identified as unsuitable are to be reviewed at least every 10 years, and shall be returned to timber production whenever the Secretary determines that conditions have changed so that they have become suitable.

The proposed regulations contain provisions designed to implement these requirements (219.10(d)(2)). We reviewed the legislative history of RPA/NFMA regarding the marginal lands issue and the proposed rules. We believe that the rules should be substantially revised to clarify both the process used to identify lands unsuitable for timber production and to specify the economic criteria to be employed. In the following sections, we review legislative history and the proposed rules. We then propose an alternative rule with the recommendation that the principles which it embodies be included in the final regulations.

The legislative history shows that the Senate and House held differing views regarding the issue of marginal lands.

Senate bill 3091 contained very specific directions regarding an economic criterion for determining suitability. Section 6(d)(H)(iii) states:

"(iii) Identify the relative productivity of land for timber production and assure that timber production is not a management goal on lands where the estimated cost of production will exceed the economic return; *Provided,* That the estimated cost of production will include only direct timber productin costs and not access, protection, revegetation and administrative costs for multiple-use purposes * * *"

The Senate Report stated that the Committee wanted "to ensure that public funds are not invested in growing timber for commercial purposes on areas where the anticipated economic return is less than the cost of production. The Committee also declared that "it is not the intent of this bill to prevent the sale of marketable timber." Finally, the Committee declared it expected the Secretary to continue to harvest timber to achieve "other resource objectives on areas where commercial production may not be feasible."

In the House, amendments to the House version of NFMA to incorporate the Senate provisions were rejected on a voice vote in the Committee on Agriculture (House Report). Arguments against the Senate provisions included: (1) Ambiquity of the language as drafted; (2) the draft provision would foster litigation; (3) it provided excessive discretion to the Secretary in making a determination relative to what lands are marginal and the basis for making the determination; (4) difficulties in allocating benefits and costs as between all the various uses; and (5) discrimination against timber.

The Conference substitute adopted by both houses dropped the specific economic test to determine suitability of land for timber production, yet retained four significant requirements: (1) The Secretary must identify lands that are not suitable for timber production; (2) the Secretary is to *consider to the extent feasible physical, economic, or other factors,* as determined by the Secretary; (3) no timber harvesting shall occur on unsuitable lands for 10 years; and (4) lands identified as unsuitable may be returned to timber production.

The Conference Report does *not* contain any declaration of intent regarding requirement (2) above. The conferees merely stated that in making such indentification (i.e., of suitability), "* * * the Secretary need not follow the present Forest Service classifications," and that "* * * there may be other 'pertinent factors' which the Secretary may consider in making the determination regarding the suitability of lands for timber production."

Since the Conference Report is not specific regarding conferee's full intent, we are forced to infer a hypothesis on the basis of *both* what the conferees *did* say and what they *did not* say.

Rather than adopting the Senate's specific benefit-cost rule, the conferees directed the Secretary to "consider" economic factors. Moreover, the Secretary is given rather broad discretionary authority to consider "other pertinent factors," as he may determine are appropriate. At the same time, it is fairly clear that the conferees did not want the Secretary to harvest timber on lands where by some rule of reason public benefits were less than production costs. The conferees compromised by agreeing to language that avoided prescribing a specific formula for determining economic suitability, but which does appear to require a weighing of the economic consequences of investing in timber production. Moreover, in both the Senate and House, there was expectation that the Secretary might harvest timber to achieve other multiple-use purposes on areas where timber production was economically unfeasible.

The process for identifying lands unsuited for timber production described in the draft regulations consists of 5 steps (Fig. 1). These involve questions and criteria, with each step leading to the identification of unsuitable lands. According to the draft, land is identified as unsuitable if:

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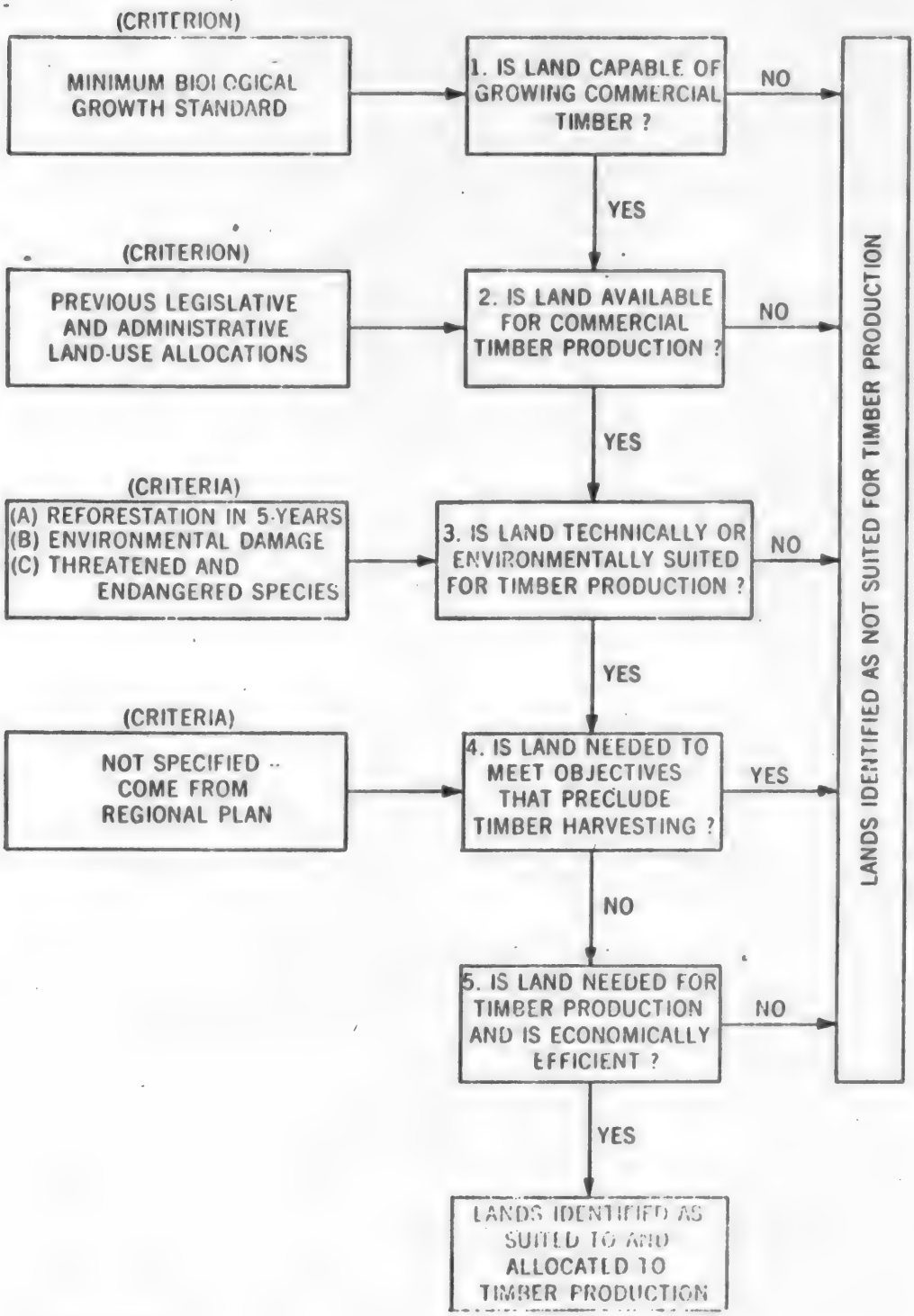
FIGURE 1
PROCESS FOR IDENTIFYING LANDS NOT SUITED FOR TIMBER PRODUCTION
DRAFT RULES


(CRITERION)
MINIMUM BIOLOGICAL GROWTH STANDARD
1. IS LAND CAPABLE OF GROWING COMMERCIAL TIMBER ?
NO
YES
(CRITERION)
PREVIOUS LEGISLATIVE AND ADMINISTRATIVE LAND-USE ALLOCATIONS
2. IS LAND AVAILABLE FOR COMMERCIAL TIMBER PRODUCTION ?
NO
YES
(CRITERIA)
(A) REFORESTATION IN 5-YEARS
(B) ENVIRONMENTAL DAMAGE
(C) THREATENED AND ENDANGERED SPECIES
3. IS LAND TECHNICALLY OR ENVIRONMENTALLY SUITED FOR TIMBER PRODUCTION ?
NO
YES
(CRITERIA)
NOT SPECIFIED -- COME FROM REGIONAL PLAN
4. IS LAND NEEDED TO MEET OBJECTIVES THAT PRECLUDE TIMBER HARVESTING ?
YES
NO
5. IS LAND NEEDED FOR TIMBER PRODUCTION AND IS ECONOMICALLY EFFICIENT ?
NO
YES
LANDS IDENTIFIED AS SUITED TO AND ALLOCATED TO TIMBER PRODUCTION
LANDS IDENTIFIED AS NOT SUITED FOR TIMBER PRODUCTION

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1. The land's biological growth potential is less than a minimum standard (as provided in the regional plan); or

2. The land is not available for timber production because it has already been legislatively or administratively allocated to an alternative use that precludes timber harvesting; or

3. The land cannot be harvested under present or anticipated technology without assurance that adequate regeneration can be obtained within 5 years after harvest, or without damage to soils, productivity, watershed conditions, or threatened or endangered species; or

4. The land is needed to meet nontimber objectives given in the regional plan; or

5. The land is not economically efficient for producing timber (benefits less than costs).

Of these 5 tests, the second and third appear straightforward and reasonable. The are included in our alternative proposal.

The first test—a minimum biological productivity test—is arbritrary and perhaps unnecessary. It is arbitrary because there is no objective basis for establishing a minimum standard. It can be argued that it is unnecessary because a proper economic analysis will identify those lands whose potential biological productivity is too low for commerical use. However, such an arbitrary standard can be useful because it removes from consideration, and therefore from analysis, those lands that are plainly unable to produce commercial timber. There may be a cost saving in the analytical process if such lands are removed before analysis. Therefore, we will accept the Forest Service's argument that such a test is useful. However, the biological growth standard should not be set so high as to preclude the application of economic analysis to the determination of suitability.

The fourth test is merely a definition. Clearly, if land is allocated to an alternative use it is unsuitable for timber production and thus the test is not an operation criterion. What test will be applied to determine if the land is needed "to meet nontimber objectivies?"

The fifth test—economic efficiency—is not stated in sufficient detail to establish either intent, policy, or analytical procedures. In this regard, we note that both the environmental groups and The National Forest Products Association proposed more detailed rules on economic analysis.

Having considered these deficiencies in the draft regulations, we propose an alternative process for identifying lands unsuited for timber production (Fig. 2). The process includes consideration of biological, technical, environmental, and economic factors, and consists of 5 steps. These are shown sequentially, but steps 3 through 5 must be conducted simultaneously and iteratively during land management planning. The process includes some features of the draft rules but it also differs in substantive ways. The main elements are:

1. Lands are first screened to determine if they are available to be considered for allocation to timber production. This screening is accomplished by identifying lands that have already been designated for nontimber use by previous legislative action or administrative decision. Such lands are not subject to any further consideration in the land allocation process. Presumably, this first step would be conducted during the inventory and data and information collection phase of the overall land management planning process. This first screen is the same as step 2 in the draft rules.

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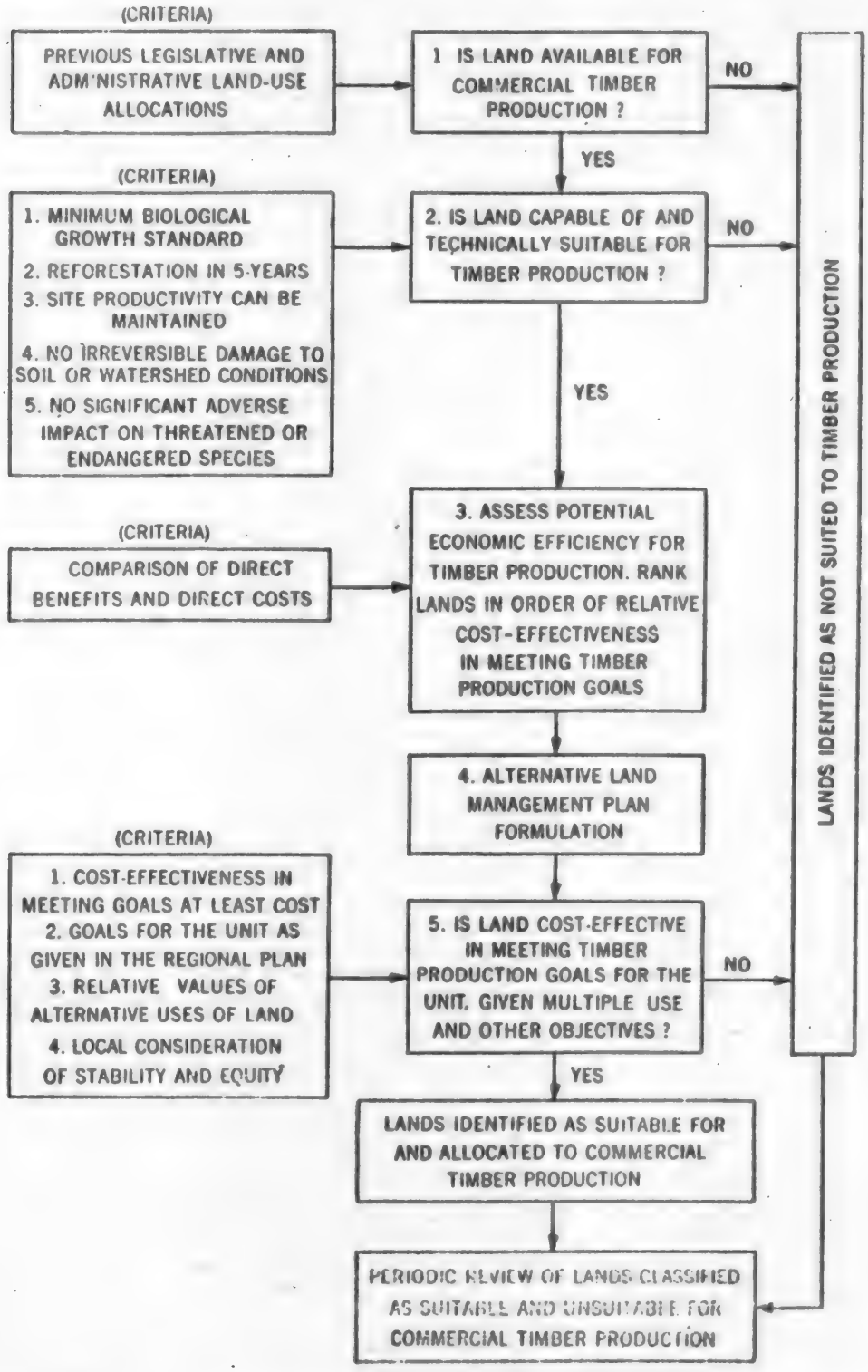
FIGURE 2
ALTERNATIVE PROCESS FOR IDENTIFYING LANDS NOT SUITED FOR TIMBER PRODUCTION


(CRITERIA)
PREVIOUS LEGISLATIVE AND ADMINISTRATIVE LAND-USE ALLOCATIONS
1 IS LAND AVAILABLE FOR COMMERCIAL TIMBER PRODUCTION ?
NO
YES
(CRITERIA)
1. MINIMUM BIOLOGICAL GROWTH STANDARD
2. REFORESTATION IN 5 YEARS
3. SITE PRODUCTIVITY CAN BE MAINTAINED
4. NO IRREVERSIBLE DAMAGE TO SOIL OR WATERSHED CONDITIONS
5. NO SIGNIFICANT ADVERSE IMPACT ON THREATENED OR ENDANGERED SPECIES
2. IS LAND CAPABLE OF AND TECHNICALLY SUITABLE FOR TIMBER PRODUCTION ?
NO
YES
(CRITERIA)
COMPARISON OF DIRECT BENEFITS AND DIRECT COSTS
3. ASSESS POTENTIAL ECONOMIC EFFICIENCY FOR TIMBER PRODUCTION. RANK LANDS IN ORDER OF RELATIVE COST-EFFECTIVENESS IN MEETING TIMBER PRODUCTION GOALS
4. ALTERNATIVE LAND MANAGEMENT PLAN FORMULATION
(CRITERIA)
1. COST-EFFECTIVENESS IN MEETING GOALS AT LEAST COST
2. GOALS FOR THE UNIT AS GIVEN IN THE REGIONAL PLAN
3. RELATIVE VALUES OF ALTERNATIVE USES OF LAND
4. LOCAL CONSIDERATION OF STABILITY AND EQUITY
5. IS LAND COST-EFFECTIVE IN MEETING TIMBER PRODUCTION GOALS FOR THE UNIT, GIVEN MULTIPLE USE AND OTHER OBJECTIVES ?
NO
YES
LANDS IDENTIFIED AS SUITABLE FOR AND ALLOCATED TO COMMERCIAL TIMBER PRODUCTION
PERIODIC REVIEW OF LANDS CLASSIFIED AS SUITABLE AND UNSUITABLE FOR COMMERCIAL TIMBER PRODUCTION
LANDS IDENTIFIED AS NOT SUITED TO TIMBER PRODUCTION

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2. Lands that are available are next screened to identify areas that are not suitable for timber production because of physical, technical, bioligical, or environmental factors. *The minimum biological standard concept is included here.* Another example is revegetation following harvest: land that cannot be reforested within 5 years after harvesting is classified as unsuitable. Criteria for making this determination are the same as those proposed in the draft regulations in § 219.10(d)(2)(i) (A) and (C).

At this point, the alternative process departs from the draft regulations in terms of the sequence of steps, concepts, and details of the tests to be performed.

3. Lands that have passed screening tests (1) and (2) are now subject to economic analysis to determine their potential economic efficiency if used to grow commercial crops of timber. The analysis requires comparison of "benefits" and "costs" in the form of an economic efficiency index such as benefit-cost ratio or present net worth. This analysis is responsive to the Senate language regarding an economic criterion for determining suitability. However, the proposed procedure does not at this stage determine if land is suitable for timber production. The final determination regarding suitability is made in the overall multiple-use land allocation decision when output goals, secondary benefits and costs, and other policy objectives are considered. In step 3, the economic analysis is used to rank areas according to their *relative* economic efficiency in timber production. This ranking may be based on differences in long-run timber production costs, or alternatively on the basis of a cost-effectiveness criterion such as benefit-cost ratio. The details of the procedure are more appropriately specified in Manual rather than in regulations. However, the proposed regulation calls for a ranking based on an economic criterion which, when combined with additional information about the production goals associated with the forest unit, is used to identify those lands which are most suitable economically for timber production.

The proposed rule permits two different measures of benefit in conducting economic analyses of the economic efficiency of timber production: alternative cost, and receipts from the sale of timber, expressed as stumpage price.

Alternative cost standard here means the most expensive unit of wood that the National Forests in the region are to supply to the market under the disaggregated RPA goals assigned to the region. Suppose, for example, that in region X, the RPA planning process has set a timber production target of 25 million board feet and that the last 1 million board feet required will cost $100 per thousand board feet to grow and harvest. For any area within any National Forest in the region, the $100 becomes the alternative cost standard. Areas within the forest would be ranked according to their relative capacity to supply wood at a production cost less than the alternative cost standard, or according to the ratio of alternative cost to production cost. It may be necessary in most regions to establish alternative cost standards for each major commercial species of timber and for different subregions.

This approach is somewhat novel, and has not been tested by the Forest Service or by us. It requires economic information from the RPA Assessment and Program planning process that may not be readily available at the present time. It has the advantage, however, of linking the identification of suitable lands directly to the key policy decisions regarding national regional timber output targets. Benefits would be measured in terms of potential site-specific cost savings to the government of meeting regional production goals.

The second benefit measure—stumpage price—is conventionally used in the private sector in assessing economic returns to investment in timber production. Stumpage price information is readily available at the forest level. However, because of market imperfections and other factors, stumpage price may be an imperfect measure of the social value of public timber supplies. Considerations other than market price of timber enter public policy decisions regarding timber production goals from the National Forest system. Thus, using stumpage price as an element in a normative criterion for ranking areas according to relative economic efficiency in timber production is subject to serious deficiencies. Yet in the absence of an established procedure for deriving a policy-determined alternative cost-standard, stumpage price may be the only practical approach to the measurement of direct timber benefits. The proposed draft rule allows either measure of benefit to be used. However, we strongly recommend that studies be conducted to determine which of the two methods is most appropriate to analyses of the economic feasibility of timber production on National Forest system lands.

4. In this step, alternative land management plans for the unit are

formulated in accordance with requirements of § 219.9(e). This step is conducted simultaneously with step 5.

5. This step is conducted as an element of the overall land management planning process at the point where alternative plans are being developed for analysis and evaluation by the interdisciplinary team. Each alternative plan will presumably have an associated timber production target. Those lands identified as potentially economically suitable for timber use are allocated to timber harvest on a cost-effective basis (using production cost (per unit or benefit-cost criteria) to the point where the goal is satisfied. However, at this point, multiple-use objectives—that is, secondary benefits and costs of timber production—must also be considered, and as a result some lands that are cost-effective for timber use may be judged more suitable for an alternative use. Correspondingly, some lands that are apparently *not* cost-effective may be allocated to timber harvesting—that is, judged suitable—if complementary nontimber benefits are considered. The Senate committee recognized this situation in its report accompanying S. 3091: "It (i.e., the Committee) expects the Secretary to continue to utilize timber harvesting and other cultural practices to achieve the other resource objectives on areas where commercial production may not be feasible."

These decisions cannot be expresssed in a simple, technically acceptable rule, and we have not tried to do so here. Information on the secondary benefits and costs—including the opportunity cost of foregoing nontimber uses of a site—is not readily available or estimated with scientifically acceptable techniques. Under the circumstances, the best that can be done in a rule is to direct planners to (a) follow a particular process; (b) give consideration to certain specific criteria (Fig. 2), and (c) document and display the information used. Thus the proposed procedure does not lay down a specific formula for making a comprehensive benefit-cost test to determine suitability for timber, but it does clearly require a type of benefit-cost analysis with the implicit objective of classifying lands as suitable for timber use if (other things equal) direct costs are less than direct benefits, or if net benefits from timber use, including complementary benefits and opportunity costs, are positive. We believe the same type of test should apply to identifying the suitability of lands for management purposes other than timber production. Indeed, such a test is implicit in the proposed procedure.

The alternative process for identifying unsuitable lands differs from the draft regulations in the following ways:

1. It reverses the order in which economic efficiency analysis and multiple use allocations are made. In the draft regulations, an economic analysis of the suitability of land for timber production is conducted *after* multiple-use planning and apparently only for those lands *not needed* for nontimber purposes. The alternative proposed here calls for an economic analysis on *all* lands that pass screens (1) and (2) *prior to* the development of alternative land management plans.

2. It defines more specifically the type of economic analysis to be performed, and how the economic information is to be used in the land management planning process in which the final determinations of unsuitability versus suitability for timber production are made.

We have put these ideas into an alternative rule for consideration. We propose that the following language be substituted for the present § 219.10(d)(2):

"(2) Timber producing lands. Each forest plan shall identify lands available, capable, and suitable for timber production and harvesting. This identification will occur as two distinct actions in the planning process in accordance with the following guidelines and standards:

(i) In the collection and use of inventory data and information all National Forest system lands will be reviewed and lands will be identified as:

(A) Available for timber production if the land has not been legislatively or administratively withdraw from timber production; or;

(B) Capable for timber production if the biological growth potential for the land is equal to or exceeds the minimum standard for timber production defined in the regional plan or if technology is available that will insure timber production from the land without irreversible resource damage to soils, productivity, and watershed conditions, and without significant adverse impact on threatened or endangered species, and with reasonable assurance that such lands can be adequately restocked within 5 years after final harvest.

(C) Lands not meeting the requirements of (A) and (B) above will be identified as not suited for timber production.

(ii) Prior to the formulation and evaluation of land management alternatives and timber harvest schedules, lands that are classified as

available and capable for timber production shall be futher reviewed and assessed to determine their potential economic efficiency in commercial timber production in accordance with the following practices, standards, and requirements. The potential economic efficiency of commercial timber production shall be assessed by comparing the anticipated direct benefits of growing and harvesting trees to the anticipated direct costs to the government, including interest and capital investments required by timber production activities. On the basis of the assessment of benefits and costs, lands will be ranked by appropriate benefit-cost criteria to establish relative potential economic efficiency in meeting the timber production goals for the unit. Specific standards and practices for making the economic analyses required by this section are to be established by the Chief, Forest Service, in regulations which shall be effective within one year following publication in the **Federal Register** of these rules for national forest system land and resource management planning.

Provided: That in assessing benefits and costs the following principles shall be followed:

(A) Direct benefits are expressed in terms of alternative cost standards or by stumpage prices as provided by the regional plan. Alternative cost is the cost to the government of growing and harvesting the last or marginal unit of each major type of commercial timber that the National Forests in the region are to supply as provided in the current National Renewable Resource Program. In the absence of such standards, direct benefits may be measured in terms of the anticipated receipts from harvesting timber crops;

(B) Direct costs include the anticipated investments, maintenance, operating, and management and planning costs attributable to timber production activities, and any costs that may reasonably be attributed to mitigation measures necessitated by the impacts of timber production. Only the additional expenditures required for timber growing and harvesting activities, including the road system, are to be included in direct costs;

(C) The rate of interest used to discount future benefits and costs of timber production shall be equal to the rate used in the National Renewable Resources Program; and

(D) Economic analyses are based on the assumptions that the lands are managed primarily for timber production with intensity of management and degree of timber utilization determined in accordance with § 219.10(d)(4)(ii)(A). However, the practices associated with a particular intensity of management must be economically efficient. Rotation periods shall be consistent with those assumed for purposes of determining the long-term sustained yield capacity as provided in § 219.10(d)(4)(ii). Economic analyses shall consider costs and returns from conversion of existing timber inventory in addition to long-term potential yield.

(iii) During formulation of alternatives and alternative evaluation and selection, combinations of resource activities and outputs must be defined and evaluated in terms of meeting management objectives. During these actions, land that has been classified as available and capable for timber production, and has been assessed as economically suitable or unsuitable for commercial production, shall be further reviewed and allocated to the various multiple uses, including timber, outdoor recreation, watershed, range, wildlife and fish, and wilderness, to meet management objectives for the unit. During this process, land shall be identified as unsuitable for timber harvesting if:

(A) Given multiple-use and other constraints, the lands are not cost-effective in meeting the timber production goals for the alternative plan under consideration;

(B) Based on a consideration of multiple-use objectives for the area, the land is allocated to resource uses that preclude timber production; or

(C) Other joint multiple uses of the area limit timber production activities to the point where the silvicultural standards and guidelines set forth in *'219.10(a)'* and 219.10(d)(3) cannot be met.

(iv) Allocation of land, whether or not potentially economically efficient for timber production, to the various multiple uses, including commercial timber production, shall consider the multiple-use objectives for the unit specified in the regional plan, cost-effectiveness in meeting all resource use goals including timber production, relative values of the different resources and their uses, complementary relationships among the uses, regional and local stability, and such other criteria as have been determined in accordance with § 219.9(b).

(v) No timber harvesting shall occur on lands classified as not suitable for timber production during the planning period as provided under paragraphs (i) and (iii) above, except that salvage sales or sales necessary to achieve other

multiple-use objectives, such as control of insects and disease, may be made if the forest plan establishes that such actions are appropriate and that timber will be harvested in accordance with the provisions of '§ *219.10(a)*' and § 219.10(d)(3). When the plan is revised, or at least every 10 years, all lands classified as not capable, available, *or* suitable for timber shall be reviewed and where changed conditions permit, lands will be reclassified as capable, available, and suitable for timber production. Lands classified as not suitable for timber production shall continue to be treated for reforestation purposes, particularly with regard to the protection of multiple-use values."

(3) Silvicultural systems.—If definitions and general provisions relating to silvicultural practices and vegetative manipulation are moved to the beginning of §§ 219.3 and 219.10, respectively, the section relating to silvicultural systems (§ 219.10(d)(3)) will be devoted solely to specific items unqiue to timber management. Thus, the section will be reduced to an enumeration of primary controls over timber cutting activities. Our proposed substitute language for § 219.10(d)(3) is:

"(3) Controls on timber cutting. (i) When trees are cut to achieve multiple-use objectives, including timber production, the cuttings will be made in such a way as to:

(A) Assure that lands can be adequately restocked within 5 years after final harvest. Research and experience must indicate that the harvest and regeneration practices planned can be expected to result in adequate restocking. Adequate restocking means that the cut area must contain the minimum number, size, distribution, and species composition of regeneration as specified in Regional Silvicultural Guides attached to the forest plan for each forest type. Five years after final harvest means 5 years after clearcutting, 5 years after final overstory removal in shelterwood cutting, 5 years after cutting in selection cutting; and

(B) Provide a means of minimizing serious or long lasting hazard from insects, disease, windthrow, wildfire, or other natural forces.

(ii) Cultural treatments such as thinning, weeding, and other partial cutting may be included in the forest plan where they are intended to increase the rate of growth of remaining trees, favor commercially valuable tree species, favor species or age classes which are more valuable for wildlife, or to achieve other multiple-use objectives.

(iii) Timber cutting activities shall met the requirements for preserving and maintaining species and community diversity required in '*219.10(a)(6)*'."

(4) Determination of the allowable sale quantity.—Section 13 of RPA as amended by NFMA gives new statutory direction to the Secretary of Agriculture regarding limitations on timber removal from units of the National Forest System. Two key requirements of section 13(a) concern the establishment of *long-term* timber harvest levels for planning periods at least one decade in duration (and, in practice, up to thirty decades). The first directs that the Secretary " * * * shall limit the sale of timber from each national forest to a quantity equal to or less than a quantity which can be removed from such forest annually in perpetuity on a sustained-yield basis * * *" The second, however, further provides "That, in order to meet overall multiple-use objectives, the Secretary may establish an allowable sale quantity for any decade which departs from the projected long-term average sale quantity that otherwise would be established * * *" Such departures must be consistent with multiple-use objectives of the land management plan, and may be made only after public participation in the planning process. Authority to make planned departures is discretionary.

We studied section 13(a) continuously during the process of developing the proposed regulations. We requested and received several studies of timber harvest scheduling problems under the Act by consultants drawn from academic, private, and public organizations. We sought guidance as to congressional intent from Forest Service officers and others. Four issues, all addressed in the proposed regulations, emerged from this research. They are:

Issue 1. Should regulations for implementing the requirements of section 13(a) be integrated with those of section 6, which primarily relates to land management planning, or developed separately?

Issue 2. What should be the operational interpretation of the first element of section 13(a), which in a literal sense appears to put a ceiling on the amount of timber that can be harvested from a National Forest?

Issue 3. Under what conditions should the Secretary exercise his discretionary authority in section 13(a) to establish a timber harvest level greater than the amount that might otherwise be established under the ceiling provision?

Issue 4. How should the process used to establish an allowable timber sale quantity be integrated with the process for establishing the harvestable quantity or yield of all forest services (recreation, wildlife, water, etc.) from the forest unit?

Issue 1. The proposed regulations require that interdisciplinary planning teams formulate land management alternatives that include determination of the quantity of timber that may be sold for each decade during the planning period. The regulations also provide specific standards and guidelines by which such determinations will be made, and they require a planning process in which the selection of a timber harvest level is made simultaneously with the development and selection of a land management plan encompassing all multiple uses. As we understand it, *the intent of the regulation is to insure that the establishment of timber harvest schedules including ceilings and planned departures, if any are proposed, are integrated comprehensively with the planning for all forest resources.* Thus, the proposed regulations combine the requirements of section 6 and section 13 in a single land management planning process.

We believe that such an approcach is sound on technical and scientific grounds. Indeed, we believe that the requirement of section 6(b) of RPA (as amended) can be satisfied only with a regulation which includes the elements enumerated above. We therefore strongly recommend that the Secretary adopt regulations that provide for such a process.

Issue 2. We were given conflicting interpretations of the precise, operational meaning of the critical phrase" * * * equal to or less than a quantity which can be removed annually in perpetuity on a sustained yield basis * * *" One interpretation is that the planned harvest and sale of timber may fluctuate upward or downward from decade to decade provided that it does not exceed a ceiling level equal to the long-term sustained yield capacity of a forest with a balanced age-class (or tree diameter class) distribution. In our view, the meaning is consistent with the grammar used in section 13(a) and with the meaning of the term "sustained yield capacity" as commonly found in forestry literature. However, various individuals and the Forest Service hold the view that section 13(a) mandates the nondeclining yield harvest policy first promulgated by the Forest Service in 1973 in Emergency Directive 13. Under this policy, the allowable sale quantity in the first decade of a multi-decade planning period is limited to a quantity

no greater than the amount that could be sustained for the whole period. In application, the planned harvest quantity might rise over that established for the first decade of the planning period, but a harvest schedule that features an unsustainable quantity for the first decade is considered unacceptable and is rejected from any consideration.

We recognize that interpretation and implementation of section 13(a) involve fundamental legal and policy considerations that go beyond those special, narrow functions which Congress assigned us in section 6(h). Yet it was not possible to give effective advice regarding an interdisciplinary approach to planning for forest resources, including timber, without at the same time giving counsel regarding the regulations for implementing section 13(a). We therefore worked with Forest Service staff to develop regulations which jointly address issues 2 and 3.

With respect to issue 2, the proposed regulations require that the interdisciplinary planning team establish for *each* land management alternative: (1) An estimate of a long-term sustained yield capacity and (2) *a base timber harvest schedule* that constrains planned harvests to nondeclining yield levels. In western National Forests, where timber harvest levels are of great importance, the calculated allowable harvest under the base timber harvest schedule may be less than long-term sustained yield capacity if the present forest is substantially understocked, or it may be greater if present stocks are greater than the quantity needed to meet long-term sustained yield objectives. In any case, if the base timber harvest exceeds the long-term sustained yield capacity, justification for such a departure must be provided as described below. Furthermore, any timber harvest schedule formulated as an alternative to the base schedule must have the capacity to eventually reach long-term sustained yield capacity. Specific rules are provided to govern the calculations.

The proposed regulation therefore incorporates the second interpretation of section 13(a) as described above, and refers to it as the "base timber harvest schedule." In a strict technical sense, the proposed rules for calculating the base timber harvest schedule are not precisely equivalent to the computational techniques currently used by the Forest Service to implement its nondeclining yield policy. Under present practice, harvest levels are permitted to fluctuate upward or downward during the postconversion period. In contrast, the proposed regulations stipulate that in the base timber harvest schedule the planned sale and harvest for any future decade must equal or exceed that in the previous decade, provided the ceiling is not exceeded.

The effect of the proposed draft regulation on timber harvest levels is difficult to predict because many factors other than harvest scheduling policy are involved. However, other things being equal, the base timber harvest in the first decade of the planning period under the proposed regulation will probably be less than what would otherwise be calculated under present practice.

Issue 3. Section 13(a) does not stipulate the conditions under which harvest ceilings may be exceeded except by general reference to multiple-use objectives. Again, we were given different interpretations of Congressional intent. One view is that Congress intended the departure provision to be exercised as an exception to the base timber harvest level only under extraordinary conditions, such as a national emergency. Others argue that Congress intended the Forest Service to adopt a more flexible approach to harvest scheduling than would otherwise be the case under nondeclining yield, but to make departures only to achieve specific objectives on particular forest units and after following an orderly planning process with full public participation.

The proposed regulation reflects the second of these two views. Specifically, it requires that alternatives (departures) to the base timber harvest schedule be formulated and considered when certain specific conditions exist in the forest unit or local area. These alternatives are to be developed for *each* land management plan under consideration, and are to be designed under the same standards as applied to the base schedule. *All harvest schedules, including proposed departures from the base schedule, must be calculated under the constraint that long-term sustained yield capacity can be achieved at the end of the planning period.* All harvest schedules are to be subjected to comparative evaluation in conformance with the requirements of NEPA. In these evaluations, the volume expected from the base timber harvest schedule is used as the standard. The selected harvest schedule may be either the base schedule or one of the alternatives, but in any case must be supported with accompanying justification and is selected simultaneously with the land management plan with which it is associated. These provisions are to be applied to each forest unit on a case-by-case basis. Thus, in application, some forest units may select an alternative involving a departure while other units will select the base schedule corresponding to nondeclining yield.

It is important to note that the proposed regulation requires only that departures be *formulated* and *considered* under the conditions specified in § 219.10(d)(4)(iii). Although many persons have criticized the regulations as requiring departures from the base schedule, *no such language appears in the draft.* The only requirement is that departures be considered when certain trigger conditions occur. Departures may be made if these conditions exist, but they are not required and must be justified when proposed. Each of these triggers can be traced back either to NFMA or to its legislative history. The second (B) is found specifically in language in the Conference Report which states that section 13 of NFMA "gives the Secretary discretion to vary the allowable sale quantity where he determines that so doing would meet multiple use management objectives and would be consistent with the basic directives of the Multiple-Use Sustained-Yield Act of 1960. The Conferees understand that the Secretary may choose to exercise this discretion for a number of reasons, including, but not limited to, such things as the desirability of improving the age-class distribution on a forest to facilitate future sustained yield management, or the desirability of reducing high mortality losses." The first (A) and third (C) can be tracked back to the economic provisions of sections 6(a) and (g) of NFMA, and (C) is described as one of several multiple-use considerations discussed by Senators Humphrey and Hatfield in a colloquy during the September 30, 1976, Senate debate on the conference report.

We believe that the draft regulations which deal with these fundamental, sensitive issues in public land management are technically sound, capable of implementation at the forest level, responsive to optimum multiple use of resources in a dynamic society, and consistent with the specific wording of section 13(a). The rules provide flexibility in establishing timber harvest quantities to meet specific objectives, and at the same time insure achievement of sustained yield, as required by the Multiple-Use-Sustained Yield Act of 1960.

We do not believe that application of the departure provisions poses any threat of overcutting a National Forest, since any proposed departure must have

demonstrated potential to achieve long-term sustained yield capacity. On the other hand, in some cases we believe substantial public benefits could result from planned, controlled departures, and that where the public benefits are compelling, such departures should be made. It should be emphasized that departures may be either upward or downward relative to the base schedule, depending upon the specific objectives sought. None can be made without comparing benefits and costs, considering environmental impacts, and seeking public participation in the planning process. The proposed approach and planning process in essence merely applies the principles of the National Environmental Policy Act of 1969 to the unique problem of establishing timber harvest quantities on the National Forests.

We recommend adoption of the principles contained in the draft regulations as they pertain to timber harvest quantities. However, because of the controversial nature of this section, and because of the misunderstandings that seem to attend the draft language, we further recommend changes in the draft regulation. First, we recommend that a statement of basic policy with regard to timber harvest scheduling be included in the regulation. Second, we recommend some changes in the introductory language to § 219.10(d)(4)(iii) to make clear that departures from the base schedule and the planning required for them are discretionary. Finally, we recommend that the authority for approving any departure above the base timber schedule lie with the Chief of the Forest Service and that this be stated in the regulations. Moving the authority for such decision to the Chief will, in our opinion, assure careful consideration and public discussion of a proposal for departure above the base schedule.

Issue 4. The proposed regulations visualize a planning process in which a base timber harvest schedule and alternatives to it are developed for *each* alternative land management plan under consideration for the forest unit. Under this approach, the land management plan and harvest schedule are selected simultaneously, with the same public participation requirements, and in the context of a joint environmental impact statement. As an alternative, it has been suggested that proposed departures from the base timber harvest schedule be developed and considered only after a preferred land management plan (and its associated base timber harvest schedule) is selected. Presumably, this approach has the merit of reducing both the cost and complexity of the planning process. We have considered this issue and recommend adoption of the procedure in the proposed regulations. The extra costs of examining departures from the base schedule under each alternative land management plan will be negligible. Moreover, the feasibility and effects of departures will in part be determined by the nature of the land management plan itself, and should be considered in the process of selecting the preferred plan. Furthermore, it requires only one round of public participation activities and preparation of environmental impact statements, whereas the other alternative would require two rounds. Finally, we find language in the Conference Report (p. 28) that states that the conferees anticipate "that the amount of timber to be harvested from any National Forest system lands shall be determined only through the process of preparing land management plans * * *." It seems clear to us that Congress intended this fundamental decision to be made as an integral part of the planning process and not as an appendage to it.

In light of these comments, we recommend the following additions and changes in § 219.10(d)(4):

1. Revise the introductory paragraph of § 219.10(d)(4) to read as follows:

"(4) Determination of the allowable sale quantity. The elements of this section are a statement of policy with respect to the determination of the quantity of timber to be sold from a National Forest. The elements of this policy are described in the following process. The interdisciplinary team shall formulate alternatives that include determination of the quantity of timber that may be sold during the planning period. These determinations must be based on the principle of sustained yield and consider only those lands capable, suitable, and available for timber production which meet the constraints set out in *'219.10(a)'* and 219.10(d)(3). For each management alternative, the determination must include a calculation of the long-term sustained yield capacity and the base harvest schedule and, when appropriate, a calculation of timber harvest schedule alternatives that may depart from the base harvest schedule as provided in paragraphs (i) through (iii).

2. Revise the introductory language to § 219.10(d)(4)(iii) so that it reads as follows:

"(iii) Departures from the base harvest schedules will be forumlated, considered, and subjected to comparative analysis as part of the planning process when any of the following conditions occur:"

3. In § 219.10(d)(4)(iii)(A) insert the words "multiple-use" between the words "meet" and "objectives."

4. In § 219.10(d)(4)(iii)(B) add at the end "or by preventing and reducing high mortality losses from any cause."

5. In § 219.10(d)(5) following the third sentence add the following: "If the selected harvest schedule is not the base timber harvest schedule or in any decade exceeds the calculated long-term sustained yield capacity for the forest unit, the land management plan shall be transmitted to the Chief, Forest Service, for approval. The Chief shall review the selected harvest schedule, and take one of two actions:

(i) Approve the selected harvest schedule, and attach to the associated land management plan a statement documenting approval; or

(ii) Disapprove the selected harvest schedule, and return the land management plan to the Regional Forester with a written statement of the reasons for such disapproval.

(6) Control measures.—We recommend adoption of this section with the following addition:

"(v) Timber harvest cuts using any system do not create a situation favorable to abnormal increase of injurious insects and diseases."

(7) Monitoring.—We recommend adoption of this section with the following addition:

"(iv) Destructive insects and disease organisms do not increase following management activities."

219.10(e) Water and soil resources

We have few comments on this section. We do feel that, since virtually all of the language in the section relates to water, the title of the section should be changed to "Water." Furthermore, the extensive provisions for protection of the soil resource throughout the regulations (as we have revised them) should, in our opinion, provide assurance of protection and wise management of this resource. This section will become § 219.10(f) if our proposed new § 219.10(a) is adopted.

219.10(f) Wilderness resource

Wilderness is recognized in NFMA (section 6(e)(1)) as one of the resource uses that must be provided for in preparing plans for units of the National Forest system. In addition, the planning regulations must insure consideration of the "economic and environmental aspects of the various systems of renewable resource management * * * to provide for outdoor recreation (including

wilderness) * * *." Beyond these general statements the act provides no further guidance concerning wilderness. It does seem clear, however, that Congress did intend for wilderness potential to be considered in the development of land management plans. As we have stated earlier (p. 15), we consider the RPA/NFMA planning process to be a rational way to deal with the difficult issues concerning wilderness. It is also important that wilderness be adequately considered in planning so that important portions of our natural heritage can be protected, not only for purposes of preservation sake, but for their importance to research and education.

The draft regulations treat, but do not fully resolve, two difficult issues regarding the wilderness resource. The first is identifying and appraising additional candidate areas to be proposed for detailed study or formal Congressional designation as Wilderness Areas. The second is establishing maximum allowable levels of use for each Wilderness Area. The introductory language to § 219.10(f) in the draft regulations, however, speaks entirely about management planning and not at all about identification of additional candidate areas. A third issue not treated is the intensity of management that should be practiced in any given wilderness area. This matter is not treated in the draft regulations. We agree with this omission. We feel that intensity of wilderness management should not be covered in regulations because flexibility is needed to develop appropriate management strategies. Recent experience, including the Eastern Wilderness Act, shows that areas that have previously been exploited by man are being designated as wilderness. Forest Service land managers should be allowed the flexibility to incorporate new technology and new concepts in managing the wilderness resource.

In light of these above comments, we recommend that the introductory language to section (f) be revised as follows:

Note.—This section will become § 219.10(g) if our proposed new § 219.10(a) is adopted.

"(f) Wilderness resource. Each forest plan will evaluate the wilderness resource present and, when appropriate, recommend areas for wilderness designation. In addition, each plan will provide management planning for lands which are designated units of the National Wilderness Preservation System and for lands specifically designated for wilderness study by Congress or recommended by the administration for possible inclusion in the system. The requirements set forth in paragraphs (1) through (4) shall apply to all forest plans.

Paragraphs 219.10(f) (1) through (3) of the draft regulations provide direction for identifying areas of potential value as designated wilderness, at each revision of the forest plan. We find certain deficiencies in the wording. First, (2) is unclear and seems to constrain consideration of potential wilderness to certain lands, largely those which have previously been recognized as having wilderness potential. We feel that all potentially eligible lands should be considered at each revision of the forest plan, regardless of their past history of consideration. Second, because wilderness designation involves elimination of other management opportunities, there should be a requirement that the planning process weigh relative costs and benefits in this, as in other, resources.

Criteria employed in the current RARE II (Roadless Area Review and Evaluation), moreover, dominate § 219.10(f)(3) and the RARE II process itself preempts any immediate action at the level of forest planning. Hence the cited paragraphs are aimed at an uncertain future date. It seems certain that new criteria and priorities will emerge as total acreage in the National Wilderness Preservation System grows. Thus we believe that the planning process would be served better by requirements to develop appropriate criteria from time to time, with public participation, rather than embedding the RARE II criteria in regulations.

Therefore, we recommend the following wording to replace paragraphs (2) and (3) of § 219.10(f):

"(2) At least at 15-year intervals, the lands within the forest meeting the criteria of the National Wilderness Preservation Act of 1964, will be evaluated and considered for recommendation as to future status. The areas to be evaluated will include:

(i) Existing wilderness and primitive areas;

(ii) All previously inventoried wilderness resources not yet designated;

(iii) Areas contiguous to existing wilderness, primitive areas, or administration-proposed wildernesses, regardless of agency jurisdiction;

(iv) Areas, regardless of size, that are contiguous to roadless and undeveloped areas in other federal ownership that have identified wilderness potential; and

(v) Areas designated by Congress for wilderness study, administration proposals pending before Congress, and other legislative proposals pending which have been endorsed by the administration.

(3) Each area designated for examination under subsection (2) above will be evaluated either in terms of current national guidelines or, in their absence, by criteria developed by the interdisciplinary team with public participation. In the latter case, the criteria must consider as a minimum:

(i) The values of the area as wilderness;

(ii) The values foregone and effects on management of adjacent lands as a consequence of wilderness designation;

(iii) Feasibility of management as wilderness, as in respect to size, nonconforming use, and land ownership patterns;

(iv) Proximity to other designated wilderness, and relative contribution to the National Wilderness Preservation System; and

(v) The anticipated long-term changes in plant and animal species' diversity and in diversity of natural communities of the National Forest and the effects of such changes on the wilderness system."

Maintenance of the unique opportunities for research, education, and human enjoyment of wilderness plainly depends on minimal evidence of man an his works, and minimal damage by users. Yet already the wild quality of some portions of some designated Wilderness Areas is being degraded by excessive human activities. Managerial options available to prevent or repair such over-use are essentially only two: (1) Diversion of visitors to less heavily used portions or corridors of an area; or (2) restrictions on number of visitors, or the duration and condition of their visit. The first option deserves continuous study but physical features of the area will often limit its applicability. Both this and the second option, limitations on visitors, should be applied before damage is generally evident or before "wilderness experience" attributes for visitors are impaired.

Paragraph 219.10(f)(4) specifies particular attention to determining when visitors use "must be held to levels that allow natural processes to operate freely * * *". In practice, this latter provision might well place exclusive emphasis on visable physical damage, rather than on its early manifestations or impaired quality of visitor experience. It may also entail reacting after degradation or impairment is apparent, with the then difficult task of reducing established levels and patterns of use. A sounder alternative would be to estimate tolerable limits of use, or "carring capacity," in advance and to regulate visitor numbers accordingly.

This approach obviously parallels the use of carrying capacity for range and wildlife resources, and the "allowable cut" in timber management. Although methods for determining "carrying capacity" of wilderness are not well advanced at this time, we believe reasonable and objective estimates can be made and frequently updated as experience grows. Such estimates would facilitate planning in advance to avoid or mitigate impairment of the paramount values for which Wilderness Areas were designed by Congress.

Accordingly, we recommend that § 219.10(f)(4) specifically require estimates of such "carrying capacity" for each Wilderness Area or selected portions within, and use of these estimates in planning wilderness management. The following wording would accomplish this:

"(4) The forest plan must provide direction for the management of designated wilderness and primitive areas. In particular, it must:

(i) Provide for limiting and distributing visitor use to a level equal to or less than carrying capacity, defined as the maximum level of use that will allow natural processes to operate freely, and that does not impair the values for which wilderness areas were created; and

(ii) Evaluate the extent to which measures against wildfire, insects, and diseases may be desirable for protection of either the wilderness or adjacent areas, and provide for such measures when appropriate."

Other resources to be treated in § 219.10

Several reviewers of the draft regulations have pointed out that they contain no real provision for consideration of *mineral resources.*[*] Although the "location and extent of existing mineral claims, and known and potential mineral deposits" is one of the informational requirements of § 219.9(c)(3), the regulations provide no real direction for consideration of mineral resources in the land allocation process.

This fact can be traced back to the RPA itself which stresses only the renewable resources (timber, wildlife, water, wilderness, recreation, range) and to section 1 the Multiple Use-Sustatined Yield Act which states that "Nothing herein shall be construed so as to affect the use or administration of the mineral resources of national forest lands * * *" Furthermore, existing Forest Service regulations (Part 252) and other federal laws and regulations govern claims, leasing and extraction on National Forest lands. It can therefore be argued that the subject of mineral resources lies outside the jurisdiction of these regulations.

We feel, however, that minerals must be taken into account during the planning process. There is little logic to deciding the allocation of National Forest lands for various purposes without attention to all reasonably foreseeable uses, which in some forests include recovery of minerals. We suggest a section added to § 219.10 to specify inclusion of minerals in the land allocation process and to insure consideration of mineral recovery as a legitimate use of National Forest land. This section should be appropriately cross-referenced to other sections of the Forest Service regulations (e.g. 252), and those of other agencies, dealing with mineral resources on National Forest land. Because of our limited expertise in the area of minerals, we cannot recommend any language. Several detailed suggestions have been submitted through the public comment process, and we suggest that these contain the basis of an appropriate treatment.

There is, likewise, no treatment of the *visual resource* in the draft regulations. Various commentators have pointed out this dificiency, and we agree that visual and esthetic considerations should be acknowledged in the final regulations. Esthetic resources and impacts are mentioned specifically in NFMA only in section 6(g)(3)(F) and then only as considerations in applying and carrying out even-aged management. The current Forest Service manual contains direction for incorporating visual and esthetic considerations into management practices. Such material could serve as the basis for brief general guidance in the regulations. Therefore, we recommend that a guideline expressing concern for visual or esthetic resources be added as one of the general standards applicable to all management systems as described in our recommended new *'219.10(a)'*. Because of our lack of expertise we will not propose specific language.

219.11 Research

We combine our analysis of monitoring, research, and control because of the close relationship between research and monitoring activities, and because NFMA treats these subjects together. Our comments should be read in context with our general discussion (p. 33) and our discussion of § 219.9, particularly as these discussions relate to subsection 219.9(j) which deals with monitoring.

The NFMA provides a non-specific charge with respect to monitoring, as noted on p. 21 of our report. Otherwise, research and monitoring are called for at only one point (6(g)(3)(C)) and then only in a particular context: "The regulations shall include, but not be limited to * * * (3) specifying guidelines for land management plans * * * which * * * (C) insure research on and (based on continuous monitoring and assessment in the field) evaluation of the effects of each management system to the end that it will not produce substantial and permanent impairment of the productivity of the land."

The Conference Report, which developed this language from the previous Senate draft clarified its purpose and stated that, "The conferees intend that such research and evaluation will be done on a sample basis for each management system." The earlier Senate committee consideration (Senate Report) had expressed its intention that there be "an overall program of on-the-ground monitoring and evaluation, coupled with research," to insure sound management. "If research or evaluation established that a management system or method is producing impairment of the productivity of the land, such system or method will be modified or discontinued" * * * Particular mention was made of "nutrient degradation" of forest soils as a matter requiring attention.

It is clear that Senate committee members and the conferees intended on-the-ground research to insure that the methods of forest management, of themselves, would not lead to substantial and permanent impairment of productivity.

The draft regulations address this intent somewhat obliquely, going far beyond it in major respects but relegating eventual decisions on basic research to the research branch of the Forest Service.

Monitoring and evaluation are established as an integral part of the planning process in § 219.9(j) of the draft regulations. Moreover, they provide for feedback from the required evaluation reports to modify management direction or the forest plan itself if "forest goals and objectives" are not being met on an environmentally sound basis. Thus monitoring and evaluation are made part of an overall control loop which is independent of day-to-day operational

[*] The terms mineral resources and minerals are used in their broadest sense to include both hardrock minerals ("locatables" such as gold, silver, copper, etc.) covered by the Mining Law of 1872, on public domain lands and minerals covered by the Mineral Leasing Act of 1920,) "leasables" such as coal, oil, gas, etc.) on all federal lands.

activities, but concerned with their ultimate effects on the ground.

These are key provisions. Not only do they meet the congressional requirements for discontinuing operations and systems that impair productivity, damage water resources, or fail to insure restocking, but if taken seriously they establish a formal system of surveillance and evaluation of on-the-ground impacts of management over time. This seems particularly useful in view of the short tenure of many district rangers and supervisors in particular offices, relative to the time often required to reveal the environmental consequences of inappropriate action. Section 219.9(j) of the draft regulations specifically refers to "management activities associated with each of the resources planned * * *" It is further buttressed, with respect to timber harvest, by requirments under § 219.10(d)(6) (Control measurement) of the draft regulations. The applicability of 219.9(j) is reiterated in our proposed management guidelines for all resources *'(219.10(a))'*, range (219.10(b)), and recreation (219.10(c)). The effectiveness of these provisions in practice is likely to depend as much on administrative arrangements for timely field evaluation and prompt reaction to it, as on funding for monitoring itself. The additional costs for the prescribed monitoring itself, however, will be substantial.

The foregoing provisions do not, however, address the matter of research on long-term effects of management systems—the concerns which underly section 6(g)(3)(C) of NFMA. Instead, paragraphs 219.11(a), (b), and (c) of the draft regulations call for identifying research needs during the initial process of planning and in subsequent evaluation. These expressed needs are to be included in formulating overall programs of research. Section 219.11(b) provides that input from all planning levels of the National Forest system will determine research priorities of the research station and national level.

Hence, § 219.11 entails a far more general view of research needs, and is a less direct, or seemingly diffuse, approach to meeting them than is required by section 6 of NFMA. The evident reason for this indirection is that the research branch of the Forest Service, including the forest experiment stations, is separate from the National Forest system and must also serve the research needs of other public and industrial and nonindustrial forest lands. Its activities are neither directed nor funded by any provision of NFMA.

As a matter of record, however, the ecological and soil impacts of timber management systems, including nutrient losses and removals, were being investigated at the Forest Service forest experiment stations even when the Senate Committee expressed its concern. These investigations continue. Thus the specific intent of 6(g)(3)(C), as revealed by its history, is already being met.

Nevertheless, the interdisciplinary teams charged with detailed planning of multiple use management will encounter may critical shortages of information, especially in respect to new approaches, and noncommodity resources. Integrated management of pests—which include insects, microorganisms and weeds—fire management, recreation management, and wilderness management are evident examples. This lack is especially acute because our expectations, our awareness of the detailed knowledge developed in other branches of science, far outrun both available information and the present pace of research in natural resource management. It is likely such lack of information will frustrate some of the best intentioned planning efforts or perhaps force cut-and-try, efforts that will place excessive burdens on the monitoring and evaluation system indicated above. We believe that paragraphs 219.11(a)–(c) should be amplified or phrased more strongly, to make clear how the research essential to implementation of the multiple use objectives of the NFMA will be identified. Regulation language, however, obviously is no substitute for the additional total research support that will be necessary.

We are aware that the problems and delays encountered in moving new research findings into application are probably more severe than in agriculture. These difficulties stem in part from lags in communication and understanding, since forestry has no parallel to agriculture's extension service despite a similar total land area to be managed. An equal source of difficulty is that the feasibility and practicality of much forest land management research can be tested only through long-term results from full-scale application. This calls for a pattern different from the conventional research and development model of test tube to pilot plant to operational use. The "technology transfer" study currently conducted by State and Private Forestry branch of the Forest Service is attempting to develop such patterns. At the same time, the information requirement for selection of the silvicultural system (219.10(d)(3)(ii)) of the draft regulations, carried over in our proposed *'219.10(a)(2)'*, coupled with the required identification of research needs or information failures revealed during the evaluation of management effect (219.9(j)) as specified below should facilitate the flow and use of applicable research results.

In light of these comments, we recommend that the following section be substituted for the present § 219.11:

"219.11 Research

(a) Research needs for management of the National Forest system will be identified during the planning process and reviewed subsequently on a continuing basis through evaluation of implemented plans. Research needs identified during planning will be forwarded through administrative channels to the office of the Chief, Forest Service, and shall become part of the annual report described in (c) below along with a description of the active and proposed research program addressing these needs.

(b) Particular attention will be given to the results of the monitoring and evaluation efforts conducted under § 219.9(j). If these efforts identify management systems or practices that are not successfully meeting stated objectives, or are resulting in substantial and permanent impairment of the productivity of the land, as a result of inadequate information or technology, the research needs identified will be immediately forwarded to the Chief, Forest Service, for subsequent action by the management of Forest Service research activities.

Identified needs will be included in formulating overall programs involving research needs on other public lands and on industrial and nonindustrial private lands. The research priorities for management of the National Forest system will be established and budgeted at the research station and national levels based on input of the National Forest system at all planning levels with due consideration to problems and opportunities identified in (a) above and through the results of the monitoring and evaluation process described in § 219.9(j).

(c) An annual report at the national level will include, but not be limited to, a description of the status of major research programs, significant findings, and how this information is to be applied in National Forest system management."

219.12 Transition period

The wording of this section of the draft regulations has been available for comment for over a year. There have

been few comments raised about it at any of our meetings. We therefore conclude that the section is probably adequate to govern the complex set of circumstances that will occur between the time when the first forest plans are completed and September 30, 1985, when all such plans must be completed. We suggest, however, that this section be carefully re-examined to determine if it is adequate to allow the Forest Service to operate a National Forest on its existing management plan until a fully completed plan approved under these regulations is in force.

Provision for Revision of the Regulations Themselves

As mentioned earlier, we believe that the regulations which govern the planning process should be subject to regular re-examination and revision, if appropriate. Such provision would serve two purposes. First, it would make clear to all parties that no aspect of the planning process is immutable and that procedures that now may be controversial, or based on partial knowledge, can be revised in the light of experience and new findings. Further, it would allow for adjustments to new technology, both in planning and in resource management practices.

We propose the following new section to appear at the end of the regulations:

"'219.13' Revision of regulations

These regulations shall be subjected to regular review and, when appropriate, revision. Such review and revision may occur whenever it is deemed necessary, but the first such review shall be completed no later than 6 years after the approval date of these regulations. Additional reviews shall occur at least every 5 years thereafter. The Secretary shall consider the use of a Committee of Scientists to assist in this review and revision. The committee shall not be the same as the one that participated in drafting the initial set of regulations. It shall operate in the manner provided in section 6(h) of the National Forest Management Act of 1976. The process of revision shall take place with full opportunity for public participation. Such public participation shall be generally similar to that required in these regulations for regional planning (§ 219.8).

Full Draft of Regulations Proposed by the Committee of Scientists

The following material is a draft of the full regulations for National Forest System Land and Resource Management Planning which incorporates all additions, deletions, and wording changes proposed by the Committee of Scientists.

PART 219—PLANNING

Subpart A—National Forest System Land and Resource Management Planning

Sec.

219.1 Purpose.
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Authority. The provisions of this subpart are issued pursuant to sections 6 and 15, 90 Stat. 2949, 2952, 2958 (16 U.S.C. 1604, 1613); and 5 U.S.C. 301.

§ 219.1 Purpose

These regulations set forth a process for the development, adoption, and revision of National Forest System land and resource management plans in accordance with the Forest and Rangeland Renewable Resources Planning Act of 1974, as amended. The environmental impact assessment process established by the National Environmental Policy Act of 1969, is contained within this land management planning process. General resource management standards and guidelines which apply to specific renewable resources are set forth in this subpart. These regulations describe how land and resource management planning shall be conducted on National Forest System lands. The resulting plans will provide for multiple use and sustained yield of products and services from the National Forest System. Plans guide all natural resource management activities. They determine forest management systems, harvesting levels and procedures under the principles of multiple use and sustained yield, and the availability and suitability of lands for resource management. All levels of planning will reflect the following principles:

(a) Balanced consideration of all renewable resources and their various uses;

(b) Establishment of goals and objectives for the sustained yield of products and services without impairment of the long-term productivity of the land;

(c) Protection of and, where appropriate, improvement of the quality of soil, water, and air resources;

(d) Preservation of important historic and cultural resource aspects of our national heritage;

(e) A systematic interdisciplinary approach;

(f) Coordination with the resource planning efforts of state and local governments, other federal agencies, and Indian tribes;

(g) Early and frequent public participation;

(h) Responsiveness to changing conditions of the land and desires of the American people;

(i) Provision for the safe use and enjoyment of the forest resources by the public; and

(j) Protection and preservation of all forest resources from depredations by forest pests by ecologically compatible means.

§ 219.2 Scope and applicability

These regulations apply to all lands of the National Forest System. Any area within the National Forest System subject to acts of Congress which are more specific than the Forest and Rangeland Renewable Resources Planning Act, as amended, such as the Wild and Scenic Rivers Act, National Trails System Act, Wilderness Act, national recreation areas acts, and other similar statutes specifically designating lands for particular uses, also are subject to the general provisions of the Forest and Rangeland Renewable Resources Planning Act, as amended, and to these regulations. In the event of conflict between the general and specific acts, the act specifically designating an area for a particular use shall be controlling.

§ 219.3 Definitions

For purposes of this subpart the following words shall have these meanings:

(a) "Capability": The ability or potential of a unit of land to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices or at a given level of management intensity. Capability depends upon a fixed set of conditions which are relatively stable overtime, including, but not limited to, climate, slope, landform, soils, and geology. Most land has an inherent capability to produce one or more resources, or goods and services, or allow resource uses, under natural conditions.

(b) "Diversity": The number of different plant and animal species and each species' abundance, plus the distribution and abundance of different natural plant and animal communities within the area covered by a land and resource management plan. A large number of species and a variety of natural bilological communities in an area is described as a high level or degree of ecological diveristy.

(c) "Economic efficiency analysis": A comparison of the values of the resource inputs (costs) required for plan implementation with the values of resource outputs (benefits) resulting from plan implementation. Benefits are expected to exceed costs.

(d) "Environmental assessment": All activities related to analyzing alternative actions and their predicatable short- and long-term environmental effects, which include physical, biological, economic, and social factors and their interactions.

(e) "Even-aged silviculture": The combination of actions that results in the creation of stands in which trees of essentially the same age grow together. Managed even-aged forests are characterized by a distribution of stands of varying ages (and therefore tree sizes) throughout the forest area. Regeneration in a particular stand is obtained during a short period at or near the time that the stand has reached the desired age or size and is harvested. Clearcutting, shelterwood cutting, seed tree cutting, and their many variations are the cutting methods used to harvest the existing stand and regenerate a new one. In even-aged stands, thinnings, weedings, cleanings, and other cultural treatments between regeneration cuts are often beneficial. Cutting is normally regulated by scheduling the area of harvest cutting to provide for a forest that contains stands having a planned distribution of age classes.

(f) "Goal": A concise statement of the desired state or condition that a land and resource management policy or program is designed to achieve. A goal is usually not quantifiable and may not have a specific date by which it is to be completed. Goals are the statements of principle from which objectives are developed.

(g) "Guidelines":

(h) "Integrated pest management": A process in which all aspects of a pest-host system are studied and weighed to provide the resource manager with an information base for decisionmaking. Integrated pest management is, therefore, a part of forest or resource management. The information provided includes the impact of the unregulated pest population on various resource values, alternative regulatory tactics and strategies, and cost/benefit estimates for these alternative strategies. Regulatory strategies are based on sound silvicultural practices and ecology of the pest-host system and may consist of a single tactic such as application of a pesticide, or a combination of tactics such as stand improvement plus selected use of pesticides. The overriding principle in the choice of strategy is that it is ecologically compatible or acceptable.

(i) "Management intensity": Management activities and the funding levels associated with them. Management intensity will vary according to site productivity and resource allocation.

(j) "Management concern": Consideration of conflicts, management problems, and constraints. Such concerns include policy, goals, and objectives.

(k) "Objective": A clear and specific statement of planned results to be achieved within a stated time period. Objectives are subordinate to goals, are narrower and shorter in range, and have an increased probability of attainment. Time periods for completion, and outputs or achievements that are measureable and quantifiable, are specified.

(l) "Policy":

(m) "Procedure":

(n) "Public issue": A subject or question of widespread public discussion or interest regarding management of National Forest System lands.

(o) "Regional Area Guides":

(p) "Regional Silvicultural Guides":

(q) "Responsible Forest Service official": That individual who has been delegated the authority to carry out a specific action under the authorities of the Secretary of Agriculture.

(r) "Silvicultural systems": A silvicultural system is a combination of interrelated actions whereby forests are tended, harvested, and replaced. The combination of management actions used in this process to manipulate the vegetation results in forests of distinctive form and character, and this determines the combination of multiple resource benefits that can be obtained. Systems are classified as even aged and uneven aged.

(s) "Standards":

(t) "Suitability": The appropriateness of applying certain resource management activities to a given unit of land, as determined by an analysis of the environmental and economic consequences and the alternative uses foregone.

(u) "Type conversions":

(v) "Uneven-aged silviculture": The combination of actions that results in the creation of forests in which trees of several or many ages may grow together. Managed uneven-aged forests may take several forms depending upon the particular cutting methods used. In some cases, the forest is essentially similar throughout, with individual trees of many ages and sizes growing in close association. In other cases, small groups of trees of similar age may be intermingled with similar groups of different ages; although the groups are even aged, they are not recorded separately. Finally, an unevenaged forest may contain two or three distinct age classes on the same area, creating a storied forest. Under uneven-aged silviculture, regeneration is obtained at several or many times during the period required to grow an individual tree to maturity. Single-tree selection cutting, group selection cutting, and other forms of partial cutting are used to harvest trees, obtain regeneration, and provide appropriate intermediate culture. Cutting is usually regulated by specifying the number or proportion of trees of particular sizes to retain within each area, thereby maintaining a planned distribution of size classes. Scheduling by area harvest is often used as well."

§ 219.4 Planning levels

The planning process includes detailed upward flows of information on local production capabilities and costs as well as local and regional demands. The national level aggregates local information, insures that national demands are considered, and decides on the appropriate level of national, regional, and local activities and budget allocations under various reasonable and likely total budget levels.

(a) National. The Chief, Forest Service, shall formulate the Renewable Resources Assessment which will analyze the present and future demands for and supplies of the nation's forest and rangeland renewable resources. Demands will be assessed over a range of prices including the price which would equate supply and demand. The assessment of supply will indicate the feasible range of alternative mixes of outputs which may be forthcoming at each of various reasonable cost levels and will be based on the capabilities of local land units. The Chief shall also analyze opportunities to improve or extend the uses of the nation's forest and rangeland renewable resources. The

Chief shall develop a recommended renewable resource program, based on the assessment, which will best meet the needs of the general public giving consideraiton to the costs of supply and the relative values of outputs as determined through the assessment of demands for both market and non-market outputs. The program will include quantified national renewable resource goals and objectives and the portion of each national goal and objective expressed as a range of outputs, which shall be assigned to each region for the regional plans. The ranges of regional goals and objectives will be based on local supply capabilities and costs so that a region can be expected to achieve the assigned level of goods and services from National Forest land. The goals and objectives will be re-evaluated and adjusted in subsequent revisions to reflect changes in relative values of goods and services and changes in the costs and capability in supplying such outputs.

(b) Regional. Each Regional Forester shall develop a regional plan designed to accomplish the region's assigned portion of the national program. The regional plan shall meet the minimum content requirements described in § 219.8, shall be developed utilizing the interdisciplinary approach described in § 219.5, and shall utilize the public participation and coordination requirements generally described in § 219.6 and § 219.7, and as further specified in § 219.8(c).

(c) Forest. Forest plans shall be developed for all lands in the National Forest system. One forest plan may be prepared for all lands for which a Forest Supervisor has responsibility, or separate forest plans may be prepared for each National Forest, or combination of National Forests, within the jurisdiction of a single Forest Supervisor. These forest plans will constitute the land management plans developed in accordance with section 6 of the Forest and Rangeland Renewable Resources Planning Act and will include all resource management planning. Forest plans must identify the range of resource capability information which is needed to formulate national, regional, and local goals and objectives. In particular, they should indicate a range of alternative mixes of outputs which would be forthcoming at each of various reasonable budget levels for the local planning unit. Forest plans will be consistent with the goals and objectives set forth in the regional plan.

§ 219.5 Interdisciplinary approach

The Forest Service shall use an interdisciplinary approach at each level of planning in the National Forest System to assure that plans provide for multiple use and sustained yield of the products and services to be obtained from the National Forests in accordance with the Multiple Use-Sustained Yield Act of 1960. This approach must insure coordinated planning for outdoor recreation, range, timber, watershed, wildlife and fish, and wilderness. Land management systems, harvest levels, and procedures must be determined with due consideration for (1) their effects on all resources, (2) the definition of "multiple use" and "sustained yield" as provided in the Multiple Use-Sustained Yield Act of 1960, and (3) the availability of lands and their suitabilities for resource management. The interdisciplinary approach shall also incorporate public participation (§ 219.6) and coordination with other levels of government and with other federal agencies (§ 219.7).

(a) An interdisciplinary team shall be used at each planning level to carry out interdisciplinary planning and to advise the responsible Forest Service official. Through essentially continuous interactions, the team shall insure that planning achieves the goals of multiple use and sustained yield management, by giving consideration to all resources and to the effects of management of one resource upon other resources. The interdisciplinary team shall be guided by the fact that the forests and rangelands of the National Forest System are ecosystems and, hence, that management for goods and services requires an awareness of the interdependencies among plants, animals, soil and the other environmental factors that occur within such ecosystems. Proposed management programs must be both consistent with the nature of these interactions and based upon the results of economic and social analysis. Of necessity, the interdisciplinary team must be composed of individuals with different technical backgrounds representing different disciplines. However, the team must inventory resources, assess management needs and opportunities, make economic and social analyses, develop and evaluate alternative management programs, and recommend a selected alternative in a manner that reflects integrated analysis throughout. The interdisciplinary team may choose any one or a combination of the many techniques and strategies available for achieving interdisciplinary planning. Throughout, however, the interdisciplinary team shall bear in mind that the goal is a technically sound and integrated management plan.

(b) The Forest Service official responsible for development of a plan shall determine the size of the interdisciplinary team and appoint its members. The team shall be composed of Forest Service personnel who collectively represent the appropriate areas of specialized knowledge about natural resources management applicable to the area being planned. The official shall also appoint the leader of the team, and may change the membership of the team as deemed necessary. Where Forest Service employees with appropriate expertise or qualifications are not available, the team shall consult persons other than Fores' Service employees.

Note.—If it proves legally possible for persons other than Forest Service employees to serve as members of teams, the last clause of the last sentence of (b) should read: "the official may also appoint persons other than Forest Service employees as team members."

(c) In the appointment of the interdisciplinary team, the responsible Forest Service official shall determine and consider the relevance of the qualifications of each potential team member on the basis of the areas of major concern being addressed in planning for the land area under consideration. Each team member shall, as a minimum, have either (1) successfully completed a course of study in an accredited college or university leading to a bachelor's or higher degree in the member's specialized area of assignment or (2) recognized expertise and experience in professional investigative, scientific, or other responsible work in the specialty which the member represents. Where available, certification programs will be used both to assure competency of individual team members and to document disciplinary representation. Field experience in the area to be planned shall be considered a desirable attribute for potential team members.

(d) In implementing the forest plan, the Forest Supervisor will assure an interdisciplinary approach by using a staff of several disciplines. If the Forest Supervisor determines that a new team is needed for evaluation or revision (219.9(j)) of the plan, a new interdisciplinary team will be appointed.

§ 219.6 Public participation

(a) Land and resource planning determines how the public lands of the National Forest System are to be managed. Therefore, it is Forest Service

policy that the public have the opportunity to participate and become involved throughout the planning process and that plans at every level consider the issues and concerns raised by the public. The objectives of public participation are to: Insure that the public understands Forest Service programs and proposed actions, and that the Forest Service understands public concerns; assure that no significant decisions are made without consultation with interested and affected segments of the public; assure that Forest Service actions are responsive to the maximum extent feasible to public concerns; and demonstrate that public concerns are evaluated and considered.

(b) As used in this section, public participation activities include public hearings, meetings, conferences, seminars, workshops, tours and similar activities scheduled and held to obtain comments from the general public and specific "publics." It also includes solicitation of written comments from individuals and groups.

(c) The responsible Forest Service official shall use public participation throughout the development, revision, and significant amendment of plans. Public participation activities as defined in (b) above should be appropriate to the level of planning, geographic area or areas, and people involved. Means of notification should be appropriate to the level of planning. Activities which unreasonably inhibit the public or the Forest Service from freely expressing views because of onerous legal requirements or the necessity for technical qualifications on the part of participants should be avoided. In no case should public hearings be the only form of public participation used. Public participation activities should be scheduled at times convenient to the public. Informational materials provided during public participation should be clearly written, should summarize complex technical materials in a manner appropriate for public and media uses, and should be designed to encourage the public to participate in significant decisions, particularly where alternative courses of action are proposed. When documents are summarized, the location of the full document should be noted. Significant issues that are to be the subject of decisionmaking should be stressed. Whenever possible, the social, economic, and environmental consequences of proposed decisions, should be clearly stated.

(d) Public participation activities shall be initiated by media notice which includes the following information:

(1) Description of the proposed planning action;

(2) Descriptions of the geographic area to be planned with maps if appropriate;

(3) The issues expected to be discussed;

(4) The kind and extent of public participation to be used;

(5) The times, dates, and locations scheduled or anticipated for public meetings;

(6) The name, title, address, and telephone number of the Forest Service official who may be contacted for further information; and

(7) The location and availability of documents relevant to the planning process.

Notice of subsequent public participation activities shall include, as a minimum, a statement of the issue(s) to be discussed and the general nature of the public response desired. Such notice shall be given directly by U.S. mail or other means to any individual or group who has requested direct notification and by any other appropriate media notice. With regard to notice of any public participation activities, publication as a legal notice shall not be acceptable as the sole means of public notification.

(e) Public participation activities in the preparation of a draft, environmental statement for planning shall begin with the publication of a notice of intent to prepare a draft environmental impact statement in the **Federal Register**. After this publication, all public participation activities for land and resource management planning, including those required by the National Environmental Policy Act, shall be conducted simultaneously.

(f) Public notice will be given at least 30 calendar days prior to activities associated with the development of national or regional plans. Public notice will be given at least 15 calendar days prior to activities associated with forest plans. Any notice requesting written comments on national and regional planning will allow at least 60 calendar days for responses, and on forest planning will allow at least 30 calendar days for responses.

(g) In the preparation of forest plans, the Forest Supervisor shall schedule public participation activies as a minimum at the following points in the planning process: (1) At the beginning of the planning effort as required in (e) above; (2) after completion of the inventory and assessment process and prior to the development and selection of alternatives; and (3) prior to the selection of the preferred alternative.

(h) A list of individuals and groups known to be interested in or affected by the plan shall be maintained. They shall be notified of public participation activities.

(i) The responsible Forest Service official or his representative shall attend all Forest Service public participation activities.

(j) All scheduled public participation activities shall be documented by a summary of the principal issues discussed, comments made, and a register of those in attendance. In addition, the plan shall contain written material demonstrating that the significant issues raised during public participation have been analyzed and evaluated as required in § 219.10(a) and summarizing the Forest Service's response to them.

(k) Copies of draft and approved plans shall be reasonably available for public review as follows:

(1) Renewable Resource Assessment and Renewable Resource Program shall be available at national headquarters, each regional office, each Forest Supervisor's office, and each District Ranger's office;

(2) The regional plan shall be available at national headquarters, at the regional office and the offices of contiguous regions, at each Forest Supervisor's office of forests within and contiguous to that region, and at each District Ranger's office in that region;

(3) The forest plan shall be available at the regional office for that forest, at that Forest Supervisor's office and the Forest Supervisor's offices contiguous to that forest, at each District Ranger's office in that forest, at those District Ranger's offices in other forests that are contiguous to that forest, and at the county court houses or public libraries in the counties (or similar government units) where the forest is located.

(4) For public information purposes, copies of the above plans may be made available at other convenient locations.

(l) Supporting documents to plans shall be available at the office where the plan was developed.

(m) Upon issuance of a draft environmental impact statement on a forest plan, revision, or significant amendment, and concurrent with the public participation activities under paragraph (g) of this section, the public shall have a 3-month period to review the statement for the proposed forest plan, revision or significant amendment. During that time additional public participation activities will take place to review the actions proposed in the draft environmental impact statement.

(n) Fees for reproducing requested documents may be charged according to the Forest Service schedule for Freedom of Information Act requests (7 C.F.R. 1.1. et seq., Appendix A).

(o) Compliance with the formal public participation requirements of this section does not remove the requirement for the responsible Forest Service official to meet with, or supply relevant information to, interested parties.

§ 219.7 Coordination of public planning efforts.

Efficient management of the resources of the National Forest System requires that planning be thoroughly coordinated among all levels of government, including state and local jurisdictions, and multi-county and multy-state bodies. Such coordination is necessary in order to insure wise use of regional and local resources and to insure, consistent with requirements of federal law, that governmental objectives, policies, and programs for management of those resources are compatible to the greatest extent possible. Therefore, the Forest Service shall maintain ongoing coordination of its national, regional, and forest planning with the equivalent and related planning efforts of state, local and other federal government agencies and with Indian tribes.

(a) The responsible Forest Service official, through the interdisciplinary team, shall coordinate Forest Service planning with land and resource management planning processes of other affected public entities, and Indian tribes.

(b) The purpose of coordination is to insure that plans at every level in the Forest Service include:

(1) An awareness and discussion of the objectives of other federal, state, and local governments and owners of intermingled private lands as expressed in their plans and policies;

(2) An assessment of the mutual impacts of these plans and policies;

(3) A determination of how each Forest Service plan should deal with the issues and impacts identified; and

(4) Where conflicts are identified, a presentation of the alternatives for their resolution.

(c) The responsible Forest Service official shall give notice of the preparation or revision of a forest plan along with a general schedule of anticipated planning steps to the State Clearinghouse (OMB Circular A–95) for circulation among state agencies. The same notice will be mailed to all Tribal or Alaska Native leaders to the extent Indian Reservations or Alaskan Native corportations are impacted, and to the heads of county boards for the counties that are involved. These notices shall be issued simultaneously with the public notice required in § 219.6(e).

(d) In order to facilitate state and local government participation in the planning process, the Chief of the Forest Service shall:

(1) Ask the Governor of each state or territory to designate a single official of that state to serve as the contact person for the Forest Service. In seeking designation of a state official, the Chief shall specify that the Forest Service desires that such appointment shall be either an official with natural resource experience, such as the chief officer of the appropriate state natural resource agency, or an official with responsibility for statewide planning if such appointment is more appropriate to a given state. Contacts with state and local governments relating to the National Assessment, National Program, and regional plan shall be coordinated through the designated state official, and state inputs into those planning activities shall be coordinated by that person. In the case of forest plans, contact shall be through the designated state official or through a person designated to serve in his stead.

(2) In the case of forest plans, ask that the Governor or his designee specified in (1) above appoint appropriate state and local government representatives to participate with the interdisciplinary team in coordinating the input of state and local governments to the forest planning process.

Note.—This language becomes unnecessary if it is possible for state personnel to serve as members of interdisciplinary teams.

(e) In the development of forest plans, the Forest Supervisor and his interdisciplinary team shall meet with the designated state official (or his designee), state advisory persons, and representatives of other federal agencies and Indian tribal governments at the beginning of the planning process to develop procedures for coordination. As a minimum, the opportunity for such conferences shall also be required at the following additional times: After issues and opportunities for management have been identified and prior to the development and selection of alternatives; and prior to the selection of the preferred alternative. Such conferences may be held in conjunction with other public participation activities, provided that the opportunities for other governmental officials to participate in the planning process are not thereby reduced.

(f) During the planning process, the responsible Forest Service official shall conduct an inventory, appropriate to each given level of planning, of multi-state, state, multi-county, and local planning and land use regulatory activity. This inventory shall include, but not be limited to, plans affecting renewable natural resources and minerals, recreation, community and economic development, land use, transportation, wildlife, growth, water and air pollution control, and energy. Plans at each level shall document this inventory and discussion of the plans of other entities. Where state and local plans contain population or economic growth projections, this discussion shall specifically analyze these and show their appropriateness, or inappropriateness, for usc in meeting the requirements of § 219.10(c)(3)(viii). The discussion shall be adequate to meet the pruposes described in § 219.7(b) above.

(g) In the development of forest plans, the responsible official shall, to the extent feasible, notify in the manner required in (c) above the owners of lands that are intermingled with, or dependent for access upon, National Forest lands and on which management is being practiced similar in character to that being practiced on adjacent National Forest lands. He shall then coordinate, to the extent feasible, his planning activities with these owners. The results of this coordination shall be included in the plan as a part of the inventory required in (f) above.

(h) In developing the forest plan, the responsible Forest Service official shall seek input from other federal, state, and local govenments, universities and private research organizations in resolving management problems identified in the planning process and in identifying areas where additional research is needed. This consultation shall be included in the discussion of the research needs of the forest being planned.

(i) The responsible Forest Service official, through the interdisciplinary team, shall coordinate forest planning acitivities with the efforts of the appropriate forest and range experiment station to identify and study lands meriting consideration for designation as research natural areas, geologic areas, botanic areas, or other special purpose areas. Such coordination shall include at least obtaining recommendations from the station as to areas that should be identified and protected pending study for potential designation.

(j) A continuing program of monitoring shall be carried out that includes

consideration of the effects of national forest management on land, resources, and communities adjacent to or near the National Forest being planned and the effects upon national forest management of activities on nearby land managed by other federal or governmental agencies or under the jurisdiction of local governments.

§ 219.8 Regional plan

(a) Regional plans must contribute to and respond to the Renewable Resource Assessment and Program by providing the following as a minimum:

(1) Long-range regional policies, goals, and objectives assigned by the National Program;

(2) Resource production objectives for each forest plan consistent with the regional plan;

(3) Guidelines to resolve public issues and management concerns, including those specific items mentioned in § 219.6(e) and those items identified through public participation and coordination activities.

(b) An environmental impact statement shall be prepared for each regional plan or revision thereof.

(c) In preparing the regional plan, the Regional Forester shall be guided by the general requirements for operation of the interdisciplinary team (§ 219.5), for public participation and environmental impact statement preparation (§ 219.6) and for coordination (§ 219.7). However, public participation and coordination acitivities shall be adapted to the circumstances of regional planning. Particular efforts shall be made to involve regional and national representatives of interest groups. Coordination shall stress involvement by appropriate state, multi-state and regional agencies and entities. Efforts shall be made to obtain appointment of the designated state official described in § 219.7(d)(1) and to coordinate with each state through that person.

(d) Because Forest Service regions are heterogeneous, contain diverse topography, soils, and forest types, and reflect widely differing political and social circumstances, the Regional Forester shall include in the regional plan a discussion of these specific differing conditions and circumstances. He may do this through preparation of Regional Area Guides as defined in § 219.3(o).

(e) In addition to public issues and management concerns identified through public participation and coordination, each regional plan shall:

(1) Prescribe according to geographic areas, forest types, or other suitable classifications, appropriate systems of silviculture to be used within the region;

(2) Determine, according to geographic areas, forest types, or other suitable classifications, at least the maximum size limits for areas to be cut in one harvest operation. In establishing such size limits, the factors enumerated in § 219.11(a)(3)(ii) shall specially be considered;

(3) Set standards for biological growth potential to be used in determing the capability of land for timber production as required in § 219.11(e)(1);

(4) Set standards, by forest type or species, for assuring that all stands of trees have reached the culmination of mean annual increment prior to harvest;

(5) Define the management intensity and utilization standards to be used in determining harvest levels for the region;

(6) Specify by geographic areas, forest types, or other suitable classifications, the minimum number, size, distribution, and species composition of regeneration necessary to define adequate restocking as required in § 219.11(e)(1).

(7) Establish the alternate cost standard(s) or price(s) to be used in determining the potential economic suitability of land for commercial timber production as required in § 219.11(e)(1). These prescriptions, size limits, and standards shall be justified through the use of appropriate scientific and technical criteria and may be established either as an integral part of the regional plan or through Regional Silvicultural Guides as defined in § 219.3(p). If guides are prepared, then such preparation shall be subject to the same public participation and approval requirements as pertain to the regional plan and they shall be considered as a part of the regional plan. When geographic areas or forest types occur in more than one region, prescriptions, size limits, and standards shall be prepared to assure their compatibility as well as the compatibility of inventory data and monitoring techniques. In the event that regional plans establish different prescriptions, size limits, or standards for the same geographic area or forest type, each regional plan involved shall explain and justify such differences.

(f) The Regional Forester shall transmit the proposed regional plan to the Chief, Forest Service, for approval. The Chief shall review the transmittal and take either of the following actions:

(1) Approve the transmittal, which may become effective 30 days after the date on which the final environmental impact statement is filed with the Environmental Protection Agency, and attach to the plan a statement documenting approval; or

(2) Disapprove the transmittal, which shall be returned to the Regional Forester with a written statement of the reasons for such disapproval.

(g) When each regional plan is approved, each forest plan prepared under these regulations will be revised or amended to bring it into conformity as soon as practicable.

(h) For purposes of administrative review pursuant to § 211.19 of this title, the approval or disapproval of the regional plan shall be the only decision subject to review. The period for submission of a notice of appeal shall run from the date of filing of the final environmental impact statement with the Environmental Protection Agency.

(i) All regional plans must be reviewed after each National Program is adopted, or whenever the Regional Forester or the Chief of the Forest Service deems it desirable. Revisions must be prepared in accordance with the requirements outlined in the section for preparation of regional plans, and will not become effective until approved in accordance with the provisions of § 219.8(f).

§ 219.9 Forest planning procedure

(a) *Responsibility.* The Forest Supervisor and the interdisciplinary team shall have the following responsibilities:

(1) Forest Supervisor. The Forest Supervisor shall have overall responsibilty for the preparation and implementation of the forest plan and shall appoint and supervise an interdisciplinary team.

(2) Interdisciplinary team. The team shall develop a proposed forest plan using the planning process in a manner consistent with the National Environmental Policy Act of 1969, and its implementing regulations. The team will implement the public participation and coordination requirements in preparing the draft and final environmental impact statements, forest plan, revisions, and amendments thereto. The team will continue to function, even though membership may change, and will monitor and evaluate planning results and recommend revisions and amendments.

(b) *Planning process records.* Records shall be maintained that support environmental assessments and alternative plans made by the team and decision made by the Forest Supervisor throughout the planning process. Such supporting records will provide the basis for the draft and final environmental statements and the

development of, revision, or significant amendment to, the forest plan.

(c) *Intergovernmental coordination.* The Forest Supervisor shall contact multi-state, state, multi-county, county, and other local agencies responsible for various planning, development, and regulatory programs including, but not limited to, water quality, pest management, recreation, air quality, community development, land use regulation, energy, wildlife, and transportation. The plans, policies and programs of these agencies will be analyzed for their relevance to the forest plan. The Forest Supervisor will systematically consult with these agencies, through state advisory personnel, in the development of the forest plan.

(d) *Draft environmental impact statement.* Proposed forest plans, revisions, or significant amendments will be described in the draft environmental impact statement. A notice of intent to prepare this statement will be issued. Beginning at the time of notification in the Federal Register of the issuance of the statement, this statement will be available for public comment for 90 days or 3 months, whichever is longer, at convenient locations in the vicinity of the lands covered by the plan, revision, or significant amendment. During this period, and in accordance with the provisions in section § 219.6, the responsible Forest Service official shall publicize and hold meetings or comparable activities as he deems appropriate to foster public participation.

(e) *Final environmental impact statement.* A final environmental impact statement on a forest plan will be prepared by the interdisciplinary team, and after review and concurrence, the Forest Supervisor will propose that it be filed by the Regional Forester at least 30 days prior to actions which are based upon the selected alternative for the plan, revision, or significant amendment. The forest plan, revision, or significant amendment shall be based on the selected alternative.

(f) *Forest plan approval.* The Forest Supervisor shall transmit the proposed forest plan, revision, or significant amendment, to the Regional Forester for approval. The Regional Forester shall review the transmittal and take either of the following actions:

(1) Approve the transmittal, which may become effective 30 days after the date on which the final environmental impact statement is filed with the Environmental Protection Agency, and attach to the plan a statement documenting approval; or

(2) Disapprove the transmittal, which shall be returned to the Forest Supervisor with a written statement of the reasons for such disapproval.

(g) *Administrative review.* For purposes of administrative review pursuant to § 211.19 of this title, the approval or disapproval of the plan, revision, or significant amendment, shall be the only decision subject to review. The period for submission of a notice of appeal shall run from the date of submission of the final environmental impact statement to the Environmental Protection Agency.

(h) *Conformity.* As soon as practicable after approval of the plan, revision, or significant amendment, the Forest Supervisor shall insure that, subject to valid existing rights, all outstanding and future permits, contracts, cooperative agreements, and other instruments for occupancy and use of affected lands are in conformity with the plan. In addition, all subsequent administrative activities affecting such lands, including budget proposals, shall be in compliance with the plan. Changes in the scheduling of management activities proposed in the forest plan may be made by the Forest Supervisor to respond to differences between annual budget proposals and appropriated funds. Such scheduled changes will be considered an amendment to the forest plan, but shall not require preparation of an environmental impact statement unless the changes significantly alter the relationship between levels of multiple-use goods and services projected under planned budget proposals as compared to those levels projected with actual appropriations.

(i) *Amendment.* The Forest Service may amend a plan through an environmental assessment. Such an amendment will be deemed significant if the assessment indicates the need to prepare an environmental impact statement. If such a need is indicated, the amending process will follow the same procedures as for the preparation of the plan. If the amendment is determined not to be significant, it may be implemented by the Forest Supervisor after public notice.

(j) *Revision.* A forest plan must be revised at least every 15 years, or whenever the Forest Supervisor determines that conditions in the area covered by the plan or the demands of the public have changed significantly. Revisions will not become effective until considered and approved in accordance with the requirements for the development and approval of a forest plan. The Forest Supervisor will review the conditions on the land covered by the plan at least every 5 years to determine whether conditions have changed significantly.

§ 219.10 Forest planning process

In the preparation of a proposed forest plan, revision, or significant amendment, the interdisciplinary team, as directed by the Forest Supervisor, shall follow a process in compliance with the national Environmental Policy Act of 1969, and its regulations and other applicable statutes. That process shall include at least the following actions:

(a) *Identification of issues, concerns, and opportunities.* Public issues, management concerns, and resource use and development opportunities identified through public involvement activities and intergovernmental coordination activities will be analyzed continually in the planning process by the interdisciplinary team. These analyses will be periodically reviewed by the Forest Supervisor who shall determine the major issues, management concerns, and use and development opportunities to be addressed in the planning process. The interdisciplinary team may recommend additions or changes for consideration and decision by the Forest Supervisor.

(b) *Development of planning criteria.* Criteria will be prepared to guide development of the forest plan, revision, or significant amendment, throughout the planning process. Planning criteria usually will apply to collection and use of inventory data and information, analysis of the management situation, the design and formulation of alternatives, and the estimation of effects of alternatives. Criteria will be used to evaluate alternatives and to select one alternative to serve as the proposed forest plan. Planning criteria may need to be revised as planning proceeds, and the interdisciplinary team will make a record of any significant change in the criteria. Generally, criteria will be based on:

(1) Laws, executive orders, and regulations;

(2) Goals and objectives in the renewable resource program and regional plans, and policy statements from higher officials;

(3) Recommendations developed from public issues, management concerns, and resource use and development opportunities;

(4) The plans and programs of other federal agencies and the plans, policies, and programs of multi-state agencies, state, and local governments;

(5) The ecological, technical, and economic feasibility of management alternatives; and

(6) The resource management standards and guidelines found in § 219.11 of this part.

(c) *Inventory data and information collection.* (1) Each Forest supervisor shall obtain and keep current inventory data appropriate for making planning and management decisions about the land and the resources under his administrative responsibility. The interdisciplinary team will collect inventory data and information, with pertinent maps, graphic material, and explanatory aids, to the degree necessary to plan effectively and carry out the environmental assessment. Inventory data and information needs may vary as planning problems develop from identification of issues, concerns, and opportunities.

(2) Inventory data must be of a detail appropriate for the management decisions to be made and include at least the following: (i) Geology and mineral characteristics; (ii) soils, their productivity and behavior under use; (iii) natural water occurrences, including quality and quantity, and wetlands and flood plains; (iv) existing plant life, including maps of actual and potential plant communities, quantitative measurements of occurrence and condition of timber species, quantitative estimates of range condition and trend, forage availability, and the capability of each site: (v) existing fish and wildlife; (vi) habitat conditions for management indicator species; (vii) existing recreational facilities; (viii) quantitative data for determining species and community diversity; and (ix) threatened and endangered plant and animal species.

(3) Informational needs generally may include: (i) Climatic, geologic, and soil hazards, wildfire potential, and major potential insect, diesease, and other pest problems; (ii) existing structural facilities and other physical changes on the land; (iii) existing transportation facilities and systems and transmission corridors for expected public utility needs; (iv) existing water developments and appropriated and reserved water rights; (v) applicable air and water quality standards, and area designation of air quality; (vi) land ownership patterns and jurisdictions, legislatively and administratively designated areas; (vii) location and extent of existing mineral claims, and known potential mineral and geothermal resources; (viii) economic and social data, such as population and employment patterns; (ix) property included in or eligible for inclusion in the National Register of Historic Places and other cultural resources; (x) quality of the visual resource; (xi) fire history and effects of fire exclusion and fire management opportunities; (xii) existing roadless areas; and (xiii) lands meriting consideration for designation under special administrative classification, such as research natural areas, geologic areas, botanic areas, or other special purpose areas.

(4) Informational needs must include the plans of other federal agencies and those of state agencies and local jurisdictions relating to resource management, land use, and community development.

(5) Methods used to gather inventory data will be consistent with those used to monitor consequences of activities resulting from planning and management. Inventory data and information will be stored for ready retrieval and comparison and periodically will be evaluated for accuracy and effectiveness.

(d) *Analysis of the management situation.* Based upon the inventory data and other relevant information, an analysis of capability and suitability of the area for resource management will be made to determine:

(1) The opportunities for providing on a sustainable basis alternative levels and mixes of various goods, services, and uses. Such an assessment shall analyze the productive capabilities of the area under alternative assumptions as to the intensity of management practices and expenditure levels. The assessment of management opportunities shall be consistent with the scope, procedures, and assumptions of the National Assessment required under section 3 of the Forest and Rangeland Renewable Resources Planning Act of 1974, as amended.

(2) Special conditions or situations which involve hazards that may cause serious or irreversible damage, and their relationship to alternative activities;

(3) Projections of public demand and price trends for the various goods, services, and uses for the period covered by the forest plan. To the extent possible, demand will be assessed as a price-quantity relationship;

(4) Opportunities to resolve public issues and management concerns; and

(5) Technical and economic feasibility of providing the levels of goods, services, and uses assigned to the forest by the regional plan and of meeting public demand.

(e) *Formulation of alternatives.* Based on the analysis of the management situation, a set of management objectives will be developed to guide the formulation of alternative plans. These objectives will provide a statement of the purpose of the actions proposed in each alternative. A reasonable range of alternative land management plans will be formulated by the interdisciplinary team and described in draft and final environmental impact statements.

(1) Reasonable range of alternatives. The alternative land management plans shall be formulated to provide alternative levels and mixes of goods, services, and resource uses for each of several alternative expenditure levels, provide that: (i) Each is capable of being chosen as the selected alternative; (ii) the alternatives include a no-change alternative which will represent existing levels of resource inputs and outputs; (iii) the alternatives provide for varying degrees in the elimination of backlogs of need treatment for the restoration of renewable resources; and (iv) the alternatives are capable of supplying the range of goods, services, and resource uses allocated to the unit in the regional plan. The range of goods and services allocated to the unit must be consistent with the resource production capability of the unit as determined in the analysis of the management situation described in 219.10(d).

(2) Alternative content. Each management alternative will contain at least: (i) A statement of future overall condition and various uses anticipated to be the result of the long-term management of the forest under the alternative; (ii) a statement of the goods and services that can be expected to be produced from selected resources; (iii) a statement of the time and vicinity of management activities which will be expected to occur to accomplish the anticipated production of goods and services, and control and mitigation of adverse environmental effects; (iv) an analysis of the changes in diversity of plant and animal species and communities, the relation of those changes to capability and suitability, and their relation to achievement of overall multiple-use objectives; and (v) provision for lands administratively designated as special purpose areas or requiring further study for potential designation such as research natural areas, geologic areas, botanic areas, or other special purpose areas.

(f) *Estimated effects of alternatives.* The physical, biological, economic, and social effects of implementing each alternative shall be estimated and displayed. Estimation of effects will involve at least:

(1) Expected changes in the physical and biological conditions including but not limited to: (i) Soil productivity and plant life; (ii) water quantity and quality, flood plains and wetlands and watersheds; (iii) air quality; (iv) esthetic values; (v) fish and wildlife; (vi) anticipated diversity of plant and animal communities compared to that diversity existing in the area being planned and to the diversity which might be expected to occur under natural forces unaffected by people; (vii) diversity of tree species in relation to that existing and that expected to occur on surrounding areas of similar soil; and (viii) the adverse effects on the human environment which cannot be avoided.

(2) Expected changes in economic and social conditions including but not limited to: (i) Local employment, payrolls, and income, direct and induced; (ii) revenue sharing with local governments; (iii) receipts to the Federal Treasury and capital improvements on the National Forest provided by users; (iv) resource commitments that are irreversible; (v) the relationship between local short-term use of the National Forest and the maintenance and enhancement of its long-term productivity; (vi) required local government services; (vii) prices for and supply of goods and services; (viii) economic stability; (ix) income from property yield and income taxes collected by state and local governments; (x) flow of resources from other lands; (xi) incidence of plan costs and benefits among affected groups; (xii) population in terms of composition, structure, and civil rights; and (xiii) effects on prime farmlands in the area surrounding the forest.

(3) Expected direct benefits and costs of the alternative expressed in present value terms computed with an appropriate interest rate including, but not limited to, the produced goods and services, administrative costs, and the protection and, as appropriate, enhancement of resources values. Direct and indirect benefits and costs will be estimated in accordance with standards and practices for economic analysis established by the Chief, Forest Service. Benefit values shall be based, where possible, on willingness to pay in an actual market. Physical outputs shall be reported for all goods and services provided. Capital investments and operating costs shall be reported separately and shall be charged proportionally to resource outputs which will be realized. Estimated costs shall include the value of resource opportunities foregone.

(4) A benefit-cost analysis including but not limited to (i) the values and costs identified in (2) and (3) above; (ii) the value of existing capital assets, including land, at the beginning and end of the period covered by the plan; and (iii) an economic efficiency indicator, such as benefit/cost ratio or estimated present net worth.

(g) *Evaluation of preferred alternatives.* The interdisciplinary team will evaluate the significant physical, biological, economic, and social effects of managment alternatives, according to the planning criteria, including at least those effects listed in subsection (f)(1) and (2) of this section. The Forest Supervisor will review the interdisciplinary team evaluation and will recommand a preferred alternative to be indicated in the draft environmental impact statement.

(h) *Selection of alternative.* After publication of the draft environmental impact statement, the interdisciplinary team will evaluate public comments and revise, as necessary, a recommended alternative. The Forest Supervisor will recommend the selected alternative for the final environmental impact statement using evaluation criteria developed pursuant to § 219.10(b).

(i) *Plan content.* The interdisciplinary team shall insure that the forest plan consists of one document or set of documents in a standard format containing at least:

(1) A brief description of the identified major public issues and management concerns;

(2) Descriptions and appropriate maps of the area covered by the forest plan;

(3) Goals and objective from the current regional plan;

(4) A description and analysis of the policies, plans, and programs of other federal agencies, multi-state agencies, state, multi-county agencies, and local jurisdictions likely to affect or be affected by National Forest management activities.

(5) Tabulations of expected types and amounts of goods, services, or uses for the time periods given in the regional plan;

(6) Proposed vicinity, timing, and standards and guidelines for proposed and probable activities;

(7) Monitoring and evaluation requirements;

(8) Appropriate references to information used in development of the forest plan; and

(9) The names of the interdisciplinary team members, together with a summary of each member's qualification in a particular discipline.

(j) *Monitoring and evaluation.* At intervals established in the forest plan, an evaluation must be made to determine how well objectives of the forest plan have been met. Management activities associated with each of the resources planned shall be evaluated through monitoring on an appropriate sample basis. Methods used to monitor consequences of activities resulting from planning and management activities will be consistent with those used to gather inventory data and will be sufficiently accurate to detect change.

(1) Monitoring requirements of the plan shall include descriptions of:

(i) those activities to be measured and the frequency of measurements;

(ii) expected precision and reliability of monitoring processes; and (iii) when evaluation reports will be prepared.

(2) Evaluation reports must be prepared and, for each management activity monitored, must contain at the least the following: (i) A quantitative estimate of performance comparing actual accomplishments with those that were anticipated in the plan; (ii) documentation of measured effects, including any change in productivity of the land; (iii) recommendations for changes; (iv) a list of needs for continuing evaluation of management systems and for alternative methods of management; and (v) unit costs associated with carrying out the planned activities as compared with unit costs estimated in the plan.

(3) Based upon the evaluation reports, the Forest Supervisor will make such changes in management direction, or revisions or amendments to the forest plan as deemed necessary to meet the forest goals and objectives.

§ 219.11 Resource management standards and guidelines.

The standards and guidelines set forth in this section will, as appropriate, be included in the planning criteria, or be applied throughout the planning process. Such application shall be only in a manner consistent with the interdisciplinary requirements of § 219.5.

(a) *All resource uses.* Certain standards and guidelines will apply to all resource uses:

(1) All management activities. All management activities must:

(i) Not allow significant or permanent impairment of the productivity of the land;

(ii) Provide means for minimizing serious or long-lasting hazards from flood, wind, wildfire, erosion, or other natural physical forces, except as these are specifically accepted, as in wilderness;

(iii) Provide means for prevention and reduction of serius or long-lasting hazards from pest organisms. The guiding principles will be those of integrated pest management;

(iv) Assure protection for streams, streambanks, shorelines, lakes, wetlands, and other bodies of water as provided under (a)(4) and (a)(5) below;

(v) Maintain diversity in plant and animal communities and preserve the variety of endemici and desirable naturalized plant and animal species currently found in the area covered by the forest plan; and

(vi) Be monitored and evaluated as required in § 219.10(j) to assure that activities are carried out in a manner consistent with the protection of soil, watershed, fish and wildlife, recreation, and esthetic values, consistent with the maintenance of timber and range productivity, and consistent with reduction of hazards from insects, disease, weed species, and fire.

(2) Vegetation management practices. When vegetation is altered by management, the methods, timing, and intensity of the practices determine the level of benefits that can be obtained from the various resources. The vegetation management practices chosen for each vegetation type and circumstance will be defined in the forest plan with a display of the alternatives examined and the reasons for the final choices. Where more than one vegetation management system will be used in a vegetation type, the conditions under which each will be used will be clearly defined. The choices will be based upon thorough reviews of technical and scientific literature and practical experience, with appropriate evaluation of this knowledge for relevance to the specific vegetation and site conditions. On National Forest land, the chosen alternative will:

(i) Be the one best suited to achieve the multiple-use goals established for the area, including consideration of all potential environmental, biological, esthetic, engineering, and economic impacts, as stated in the regional and forest plans;

(i) Assure that forested lands can be adequately restocked within 5 years after final harvest, except where permanent openings are created for wildlife habitat improvement, vistas, recreation uses, and similar activities;

(iii) Not be chosen primarily because it will give the greatest dollar return or the greatest output of any one product or service, although these factors shall be considered. Both short- and long-term costs and benefits shall be used in economic analysis rather than immediate or short-term returns;

(iv) In meeting the requirements of § 219.11(a)(1)(ii) and (iii) above, give particular attention to potential effects on residual and adjacent vegetation;

(v) Avoid permanent impairment of site productivity, and assure conservation of soil and water resources in accord with § 219.11(a)(5);

(vi) Provide the desired effects on water quantity and quality, wildlife and fish habitat, regeneration of desired plant species, recreation uses and esthetic values, and resource yields;

(vii) Be practical to use in terms of such factors as administration, costs of sales, transportation, and related considerations; and

(viii) Preserve and maintain species and community diversity as required in § 219.11(a)(6).

(3) Control of openings. When openings are created by the application of an even-aged silvicultural system:

(i) The blocks or strips cut shall be shaped and blended with the natural terrain to achieve esthetic and wildlife habitat objectives to the extent practicable; and

(ii) Individual cut blocks, patches, or strips must conform to the maximum size limits for areas to be cut in one harvest operation established by the regional plan according to geographic areas and forest types. The following factors must be considered in determining size limits by geographic areas and forest types: Topography; relationship of units to other natural or man-made openings and proximity of units; coordination and consistency with adjacent forests and regions; effects on water quality and quantity; effects on wildlife and fish habitat; regeneration requirements for desirable tree species based upon the latest research findings; transportation and harvesting system requirements; natural and biological hazards to survival of residual trees and surrounding stands; and relative total costs of preparation, logging, and administration of harvest cuts of various sizes. The size limits may be exceeded after 30 days public notice and after review by the responsible official one level above the official who normally would approve the harvest proposal. The established limit shall not apply to the size of areas harvested as a result of natural catastrophic condition such as fire, insect and disease attack, or windstorm.

(4) Protection of streams and lakes. During the inventory, planning, and monitoring processes, special attention shall be given to a strip approximately 30 meters wide along both sides of all perennial streams, lakes, and other bodies of water. All management activities withing these strips, such as timber, harvest, road and campground location or construction, range, improvements, or fish and wildlife habitat modifications, will be conducted in such a way as to protect these waters from detrimental changes, in compliance with § 219.11(f) (4), (5), and (6), and to the extent that total multiple-use benefits exceed costs. Such changes include increases in water temperatures or chemical composition, blockages of water courses, or deposits of sediment that are likely to seriously and adversely affect water conditions or fish habitat. The interdisciplinary team will consider topography, vegetation type, soil, climatic conditions, management objectives, and other factors in determining what activities may be performed within these strips and the constraints to be placed upon their performance in order to assure protection of water quality or other multiple-use values. Documentation of the steps taken to meet this requirement shall included in the plan as required in § 219.10(i)(5).

(5) Conservation of soil and water resources. The analysis, protection, enhancement, treatment, and evaluation of soil and water resources, and their responses under management, as required by § 219.10(c), (d), (f), (j), and 219.11(a), will be guided by instructions in official technical handbooks. These handbooks will indicate site-specific and activity-specific practices aimed at avoiding or mitigating damage, and maintaining or enhancing productivity. They will also establish performance standards and tolerance limits for such effects as soil disturbance, erosion, compaction, nutrient losses, stream turbidity, and wetland and flood plain impacts, taking account of applicable federal and state regulations respecting water. These handbooks may be regional in scope or, where feasible, specific to geological or climatic provinces.

(6) Diversity. Diversity of plant and animal species shall be considered throughout the planning process, and in the selection of a forest plan. Inventories shall include quantitative data which make it possible to assess past and present species and community diversity (219.10(c)(2)). Each alternative considered shall include a determination of how diversity of species and communities will be affected, including discussion of changes in diversity which have taken place, and a comparison of the proposed action to this historical framework (219.10(f)(1)(vi) and (vii)). To

the extent practicable, the objective shall be to preserve and increase species and community diversity so that it will be at least similar to that which would be expected in unmanaged areas in the region. Reductions in diversity may be considered only where needed to meet overall multiple-use management objectives. Planned type conversions must be justified by a detailed analysis showing biological, economic, and social consequences and the relation of that conversion to natural dynamic processes.

(7) Esthetic consideration.

(b) *Fish and wildlife resource.* A principal responsibility of the Forest Service is to manage habitats in order to maintain viable populations of all existing native vertebrate species and to maintain and improve habitat of management indicator species. To meet that responsibility, management planning of the fish and wildlife resource will include the requirements set forth in paragraphs (1) through (8).

(1) The desired future condition of fish and wildlife, where technically possible, will be stated in terms both of animal population trends and of amount and quality of habitat.

(2) Management indicator species will be identified as concerns for planning, and justification for their selection will be given. These species shall include at least; endangered and threatened plant and animal species identified on state and federal lists for the area of the planning unit; species with special habitat needs that may be influenced significantly by planned management programs; species commonly hunted, fished, or trapped; and additional plant or animal species selected because their population changes are believed to indicate effects of management activities on other species of a major biological community or on water quality. On the basis of available scientific information, the effects of changes in vegetation type, timber age classes, community composition, rotation age, and year-long suitability of habitat related to mobility of management indicator species will be estimated. Where appropriate, measures to mitigate adverse effects will be prescribed.

(3) Biologists from state fish and wildife agencies and other federal agencies shall be invited to participate in the work of the interdisciplinary team. The forest plan shall be coordinated with the state strategic fish and wildlife plans, to the extent practicable.

(4) Access and dispersal problems of hunting, fishing, and other visitor uses will be considered.

(5) The effects of pest management on fish and wildlife populations will be considered.

(6) Population trends of the management indicator species shall be monitored and relationships to habitat changes determined. This monitoring shall be done in cooperation with state fish and wildlife agencies, to the extent practicable.

(7) Critical habitat for threatened and endangered species will be determined, and measures shall be prescribed to prevent the destruction or adverse modifications of such habitat. Consideration shall be given to opportunities for improving their habitat.

(8) Effects of proposed changes in diversity on fish and wildlife will be evaluated.

(c) *Range resource.* Rangelands within the National Forest System will be inventoried, planned for, and managed according to the standards and guidelines set forth below:

(1) Rangelands. Each forest plan shall identify lands available, capable, and suitable for grazing and/or browsing by wild, domestic, and feral animals. The procedures and data to be acquired include, but are not limited to, the following:

(i) Range condition and trend studies conducted on each forest during the vegetation inventory as described in § 219.10(c)(2). These data will form the basis for the range management plan;

(ii) Records of actual use by domestic livestock, feral animals, and management indicator species of wildlife, and estimated percentage utilization of key forage species;

(iii) Analysis of vegetation data to determine range capability. This will consider:

(A) An estimate of the current ability of the rangelands to produce suitable food and cover for the management indicator species of wildlife;

(B) An estimate of the present supply of forage for sheep, cattle, and feral animals; and

(C) An estimate of the potential ability to produce feed and cover for wild, domestic, and feral animals; and

(iv) Analysis of range's ability to produce wild, feral, and domestic animals without permanent impairment of the resource will be based upon the condition of the vegetation, statutory and/or administrative withdrawals, characteristics of soil and slope, and accessibility to grazing and/or browsing animals.

(2) Range management systems. Management systems, including the existing system, will be considered in an alternatives analysis as required by § 219.10(f). Each alternative will meet the requirements of § 219.11(a) and will include consideration of at least the following:

(i) Grazing management systems;

(ii) Methods of altering successional stages for range management objectives, including vegetation manipulation as described in § 219.11(a)(2);

(iii) Evaluation of pest problems, and availability of integrated pest management systems;

(iv) Possible conflicts or beneficial interactions among domestic, feral, and wild animal populations, and methods of regulating these;

(v) Physical facilities such as fences, water points, and corrals, necessary for efficient management; and

(vi) Existing permits, cooperative agreements, and related obligations.

(3) Each management plan will include a mechanism for monitoring range trend in accord with the evaluation requirements of § 219.10(j).

(4) Plans shall comply with laws relating to the use of the range resource, particularly the Federal Land Policy and Management Act of 1976, the Bankhead Jones Farm Tenant Act (50 Stat. 526, as amended), and the Wild Horses and Burros Protection Act (85 Stat. 649).

(5) The economic and social impacts on small communities and the local livestock industry will be evaluated in the selection of alternatives for management.

(d) *Recreation resource.* Management planning will provide for a borad spectrum of dispersed and developed recreation opportunities in accord with identified needs and demands. Planning will be governed by the goals of the regional plan, the general requirements of §§ 219.10 and 219.11(a), and the specific requirements of paragraphs (1) through (7) below:

(1) Each forest plan will identify the lands available, capable, and suitable for recreation.

(i) The physical and biological characteristics that make land suitable for recreation activities will be identified during the inventory process (219.10(c)).

(ii) During the analysis of issues, the recreational preferences and behavior of present user groups and those of the foreseeable future will be used to identify recreation opportunities on the National Forest and associated lands.

(2) The supply of recreational facilities to meet present and future

needs in the area surrounding the forest will be appraised.

(3) Following (1) and (2) above, alternatives will be developed to provide a wide array of recreation opportunities responsive to current and anticipated user demands. The alternatives will include consideration of management need, establishment of physical facilities, and regulation of use.

(4) In formulation and analysis of alternative forest plans as specified in § 219.10(e) and (f), interactions among recreation activities and other multiple uses shall be examined. This examination shall consider:

(i) Impacts of the proposed recreation activities on other uses and values;

(ii) Impacts of other uses and activities associated with them on recreation opportunities, activities, and quality of experience; and

(iii) Mechanisms for mitigating any undesirable physical and social effects resulting from recreational opportunities.

(5) Development and evaluation of program alternatives under subsections (3) and (4) must be coordinated to the extent feasible with:

(i) Present and proposed recreation activities of local and state land use or outdoor recreation plans, particularly the State Comprehensive Outdoor Recreation Plan; and

(ii) Recreation opportunities already present and available on other public and private lands, with the aim of reducing duplication in meeting recreation demands.

(6) Modification of land ownership patterns to meet present and future recreation needs will be considered.

(7) The overall monitoring and evaluation program (219.10(j)) will include:

(i) Evaluation of changes in, or damage to, other resources resulting from recreation activities, and effectiveness of mitigation mechanisms developed under (4)(iii) of this section; and

(ii) Assessment of the adequacy of programs and activity opportunities in terms of present and future use.

(e) *Timber resource.* To insure production of timber products and related forest benefits, the requirements and procedures set forth in this section will be included in the planning process.

(1) Timber producing lands. Each forest plan shall identify lands available, capable, and suitable for timber production and harvesting. This identification will occur as two distinct actions (Fig. 2) in the planning process in accordance with the following guidelines and standards:

(i) In the collection and use of inventory data and information, all National Forest System lands will be reviewed and lands will be identified as:

(A) Available for timber production if the land has not been legislatively or administratively withdrawn from timber production; or;

(B) Capable for timber production if the biological growth potential for the land is equal to or exceeds the minimum standard for timber production defined in the regional plan or if technology is available that will insure timber production from the land without irreversible resource damage to soils, productivity, and watershed conditions, and without significant adverse impact on threatened or endangered species, and with reasonable assurance that such lands can be adequately restocked within 5 years after final harvest.

(C) Lands not meeting the requirements of (A) and (B) above will be identified as not suited for timber production.

(ii) Prior to the formulation and evaluation of land management alternatives and timber harvest schedules, lands that are classified as available and capable for timber production shall be further reviewed and assessed to determine their potential economic efficiency in commercial timber production in accordance with the following practices, standards, and requirements. The potential economic efficiency of commercial timber production shall be assessed by comparing the anticipated direct benefits of growing and harvesting trees to the anticipated direct costs to the government, including interest and capital investments required by timber production activities. On the basis of the assessment of benefits and costs, lands will be ranked by appropriate benefit-cost criteria to establish relative potential economic efficiency in meeting the timber production goals for the unit. Specific standards and practices for making the economic analyses required by this section are to be established by the Chief, Forest Service, in regulations which shall be effective within one year following publication in the Federal Register of these rules for National Forest System land and resource management planning. *Provided:* That in assessing benefits and costs, the following principles shall be followed:

(A) Direct benefits are expressed in terms of alternative cost standards or by stumpage prices as provided by the regional plan. Alternative cost is the cost to the government of growing and harvesting the last or marginal unit of each major type of commercial timber that the National Forests in the region are to supply as provided in the current National Renewable Resource Program. In the absence of such standards, direct benefits may be measured in terms of the anticipated receipts from harvesting timber crops;

(B) Direct costs include the anticipated investments, maintenance, operating, and management and planning costs attributable to timber production activities, and any costs that may reasonably be attributed to mitigation measures necessitated by the impacts of timber production. Only the additional expenditures required for timber growing and harvesting activities, including the road system, are to be included in direct costs;

(C) The rate of interest used to discount future benefits and costs of timber production shall be equal to the rate used in the National Renewable Resources Program; and

(D) Economic analyses are based on the assumptions that the lands are managed primarily for timber production with intensity of management and degree of timber utilization determined in accordance with § 219.11(e)(3)(iii)(A). However, the practices associated with a particular intensity of management must be economically efficient. Rotation periods shall be consistent with those assumed for purposes of determining the long-term sustained yield capacity as provided in § 219.11(e)(3)(iii). Economic analyses shall consider costs and returns from conversion of existing timber inventory in addition to long-term potential yield.

(iii) During formulation of alternatives and alternative evaluation and selection, combinations of resources activities and outputs must be defined and evaluated in terms of meeting management objectives. During these actions, land that has been classified as available and capable for timber production, and has been assessed as economically suitable or unsuitable for commercial production, shall be further reviewed and allocated to the various multiple uses, including timber, outdoor recreation, watershed, range, wildlife and fish, and wilderness, to meet management objectives for the unit. During this process, land shall be identified as unsuitable for timber harvesting if:

(A) Given multiple-use and other constraints, the lands are not cost-effective in meeting the timber production goals for the alternative plan under consideration;

(B) Based on a consideration of multiple-use objectives for the area, the land is allocated to resource uses that preclude timber production; or

(C) Other joint multiple uses of the area limit timber production activities to the point where the silvicultural standards and guidelines set forth in §§ 219.11(a) and 219.11(e)(2) cannot be met.

(iv) Allocation of land, whether or not potentially economically efficient for timber production, to the various multiple uses, including commercial timber production, shall consider the multiple-use objectives for the unit specified in the regional plan, cost-effectiveness in meeting all resource use goals including timber production, relative values of the different resources and their uses, complementary relationships among the uses, regional and local stability; and such other criteria as have been determined in accordance with § 219.10(b).

(v) No timber harvesting shall occur on lands classified as not suitable for timber production during the planning period as provided under paragraphs (i) and (iii) above, except that salvage sales or sales necessary to achieve other multiple-use objectives, such as control of insects and disease, may be made if the forest plan establishes that such actions are appropriate and that timber will be harvested in accordance with the provisions of §§ 219.11(a) and 219.11(e)(2). When the plan is revised, or at least every 10 years, all lands classified as not capable, available, *or* suitable for timber shall be reviewed and where changed conditions permit, lands will be reclassified as capable, available, and suitable for timber production. Lands classified as not suitable for timber production shall continue to be treated for reforestation purposes, particularly with regard to the protection of multiple-use values.

(2) Controls on timber cutting. (i) When trees are cut to achieve multiple-use objectives, including timber production, the cuttings will be made in such a way as to:

(A) Assure that lands can be adequately restocked within 5 years after final harvest. Research and experience must indicate that the harvest and regeneration practices planned can be expected to result in adequate restocking. Adequate restocking means that the cut area must contain the minimum number, size, distribution, and species composition of regeneration as specified in Regional Silvicultural Guides attached to the forest plan for each forest type. Five years after final harvest means 5 years after clearcutting, 5 years after final overstory removal in shelterwood cutting, 5 years after cutting in selection cutting; and

(B) Provide a means of minimizing serious or long lasting hazard from insects, disease, windthrow, wildfire, or other natural forces.

(ii) Cultural treatments such as thinning, weeding, and other partial cutting may be included in the forest plan where they are intended to increase the rate of growth of remaining trees, favor commercially valuable tree species, favor species or age classes which are more valuable for wildlife, or to achieve other multiple-use objectives.

(iii) Timber cutting activities shall meet the requirements for preserving and maintaining species and community diversity required in § 219.11(a)(6)).

(3) Determination of the allowable sale quantity. The elements of this section are a statement of policy with respect to the determination of the quantity of timber to be sold from a National Forest. The elements of this policy are described in the following process. The interdisciplinary team shall formulate alternatives that include determination of the quantity of timber that may be sold during the planning period. These determinations must be based on the principle of sustained yield and consider only those lands capable, suitable, and available for timber production which meet the constraints set out in §§ 219.10(a) and 219.11(e)(2). For each management alternative, the determination must include a calculation of the long-term sustained yield capacity and the base harvest schedule and, when appropriate, a calculation of timber harvest schedule alternatives that may depart from the base harvest schedule as provided in paragraphs (ii) through (iv).

(i) As used in this section, the following definitions apply:

(A) "Allowable sale quantity": The quantity of timber that may be sold from the area of land covered by the forest plan for a time period specified by that plan. This quantity is usually expressed as an average annual sale volume.

(B) "Average annual sale volume":

(C) "Long-term sustained yield capacity": The highest uniform wood yield from those lands in a forest being managed for timber production that may be sustained under a specified intensity of management consistent with multiple-use objectives.

(D) "Timber harvest schedule": A description of quantity and the time period in which timber is planned for sale and harvest from the area of land covered by the forest plan. The first period, usually a decade, of the selected harvest schedule provides the allowable sale quantity. Future periods are shown only to establish that sustained yield will be achieved and maintained.

(E) "Timber production": The growing, tending, harvesting, and regeneration of regulated crops of industrial wood. Industrial wood includes, logs, bolts, or other round sectins cut from trees for industrial consumer use except fuelwood.

(ii) For the base harvest schedule the planned sale and harvest for any future decade must be equal to or greater than the planned sale and harvest for the preceing decade provided that the planned harvest is not greater than the long-term sustained yield capacity.

(iii) The determinations of the long-term sustained yield capacity, base harvest schedules, and departure alternatives to the base harvest schedule will be made on the basis of the guidelines which follow:

(A) For the long-term sustained yield capacity and the base harvest schedule assume an intensity of management and degree of timber utilization consistent with the goals, assumptions, and standards contained in, or used in the preparation of, the current Renewable Resource Program and regional plan. For the long-term sustained yield capacity, the management and utilization assumptions must reflect those projected for the fourth decade of the regional plan. For the base harvest schedule, the management and utilization assumptions must reflect the projected changes in practices for the four decades of the regional plan. Beyond the fourth decade, the assumptions must reflect those projected for the fourth decade of the regional plan.

(B) For departure alternatives to the base harvest schedule which provide outputs above the current regional plan, assume an appropriate management intensity.

(C) In accordance with the established standards, assure that all even-aged stands scheduled to be harvested during the planning period shall generally have reached the culmination of mean annual increment of growth. Mean annual increment must be based on management intensities and utilization standards assumed in paragraphs (A) and (B) of this subsection and expressed as units of measure consistent with the regional plan. Exceptions to these standards are permitted for the use of sound silvicultural practices, such as thinning or other stand improvement measures; for salvage or sanitation harvesting of timber stands which are

substantially damaged by fire, windthrow, or other catastrophe, or which are in imminent danger from insect or disease attack; or for the removal of particular species of trees after consideration has been given to the multiple uses of the area being planned and after completion of the public participation process applicable to the preparation of a forest plan.

(D) For all harvest schedules, achieve a forest structure by the conclusion of the schedueling period that will enable perpetual timber harvest thereafter at the long-term sustained yield capacity, consistent with the long-range multi-use objectives of the alternative.

(iv) Departures from the base harvest schedules will be formulated, considered, and subjected to comparative analysis as part of the planning process when any of the following conditions occur:

(A) None of the timber harvest alternatives formulated has the capacity to produce the goods, services, or uses to met multiple-use objectives specified for the area by the regional plan.

(B) Attainment of the multiple-use objectives of the forest plan will be enhanced by more rapid and efficient achievement of the long-term sustained yield capacity of the forest owing to present forest structure or by preventing or reducing high mortality losses from any cause.

(C) Implementation of the base harvest schedule would cause instability or dislocation in the economic area in which the forest is located.

(4) Harvest schedule selection. Selection of a harvest schedule must be made following a comparison of management alternatives. This comparison must include an evaluation of the sustained yield goal, silvicultural standards and guidelines, and the effects of timber removal on other resources. The selected harvest schedule provides the allowable sale quantity, or the quantity of timber that may be sold from the area of land covered by the forest plan for the plan period. If the selected harvest schedule is not the base timber harvest schedule or in any decade exceeds the calculated long-term sustained yield capacity for the forest unit, the land management plan shall be transmitted to the Chief, Forest Service, for approval. The Chief shall review the selected harvest schedule, and take one of two actions:

(i) Approve the selected harvest schedule, and attach to the associated land management plan a statement documenting approval; or

(ii) Disapprove the selected harvest schedule, and return the land management plan to the Regional Forester with a written statement of the reasons for such disapproval.

Within the planning period, the volume of timber to be sold in any one year may exceed the average annual allowable sale quantity so long as the total amount sold for the planned period does not exceed the allowable sale quantity. Nothing in this standard shall prohibit the responsible Forest Service official from providing for salvage or sanitation harvesting of timber stands as which are substantially damaged by fire, windthrow or other catastrophe, or which are in imminent danger from insect or disease attack, provided such harvest is consistent with silvicultural and environmental standards. This timber may either substitute for timber that would otherwise be sold under the plan or, if not feasible, be sold over and above the planned volume.

(5) Control measures. As a minimum, control measures must be established to insure that:

(i) Harvest levels based on intensified management practices are decreased no later than the end of each planning period if such practices cannot be completed substantially as planned;

(ii) Prior to sale, the potential physical, biological, aesthetic, engineering, and economic impacts have been assessed on each advertised sale area, as well as the consistency of the sale with the multiple uses of the general area, providing that harvested areas should be dispersed so that normal streamflow charateristics are not appreciably changed;

(iii) Cut blocks, patches, or strips are shaped and blended to the extent practicable with the natural terrain to achieve asthetic and wildlife habitat objectives;

(iv) Timber harvest cuts designed to regenerate an even-aged stand of timber are carried out in a manner consisent with the protection of soil, watershed, fish and wildlife, recreation, and aesthetic resources, and the regeneration of the timber resource; and

(v) Timber harvest cuts using any system do not create a situation favorable to abnormal increase of injurious insects and diseases.

(6) Monitoring. As a minimum, monitoring measures must be established to insure that:

(i) Lands are adequately restocked within the time planned for regeneration after the final harvest cut;

(ii) Lands identified as not suited for timber production will be examined to determine if conditions have changed so that these lands may be returned to timber production at the time of revision of the forest plan or every 10 years;

(iii) Maximum size limits for areas to be cut in one entry are evaluated to determine whether such size limits continue to meet silvicultural and management objectives; and

(iv) Destructive insects and disease organisms do not increase following management activities.

(f) *Water resource.* In order to provide high-quality water sufficient to meet human and environmental needs and to insure protection from loss of life, property, or physical and biological values resulting from floods, avalanches, and other water related events, the requirements set forth in paragraphs (1) through (6) will be followed in planning the management of the water and soil resources.

(1) Current water uses (both consumptive and non-consumptive) within the area of land covered by the forest plan, including instream flow requirements, will be determined.

(2) Existing impoundments, transmission facilities, wells, and other man-made developments on the area of land covered by the forest plan will be identified.

(3) The probable occurrence of various levels of water volumes, including extreme events which would have a major impact on the planning area, will be estimated.

(4) Plans shall comply with the requirements of the Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977, the Safe Drinking Water Act, and all substantive and procedural requirements of federal, state, and local governmental bodies with respect to the provision of public water systems and the disposal of waste water.

(5) Existing or potential watershed conditions that will influence soil productivity, water yield, water pollution, or hazardous events, will be evaluated.

(6) Measures, as directed in applicable Executive Orders, to minimize risk of flood loss and to restore and preserve floodplain values, and to protect wetlands, will be adopted.

(g) *Wilderness resource.* Each forest plan will evaluate the wilderness resource present and, when appropriate, recommend areas for wilderness designation. In addition, each plan will provide management planning for lands which are designated units of the National Wilderness Preservation System and for lands specifically designated for wilderness study by Congress or recommended by the administration for possible inclusion in

the system. The requirements set forth in paragraphs (1) through (4) shall apply to all forest plans.

(1) The interdisciplinary team will collect and use information about existing and potential wilderness values for those lands identified by Congress or by the Forest Service as lands suitable for further study for possible inclusion in the System. Lands identified in previous planning processes as lands to be managed for purposes other than wilderness need not be assessed for wilderness in development of the initial generation of forest plans prepared under these regulations.

(2) At least at 15-year intervals, the lands within the forest meeting the criteria of the National Wilderness Preservation Act of 1964, will be evaluated and considered for recommendation as to future status. The areas to be evaluated will include:

(i) Existing wilderness and primitive areas;

(ii) All previously inventoried wilderness resources not yet designated;

(iii) Areas contiguous to existing wilderness, primitive areas, or administration-proposed wildernesses, regardless of agency jurisdiction;

(iv) Areas, regardless of size, that are contiguous to roadless and undeveloped areas in other federal ownership that have identified wilderness potential; and

(v) Areas designated by Congress for wilderness study, administration proposals pending before Congress, and other legislative proposals pending which have been endorsed by the administration.

(3) Each area designated for examination under subsection (2) above will be evaluated either in terms of current national guidelines or, in their absence, by criteria developed by the interdisciplinary team with public participation. In the latter case, the criteria must consider as a minimum:

(i) The values of the area as wilderness;

(ii) The values foregone and effects on management of adjacent lands as a consequence of wilderness designation;

(iii) Feasibility of management as wilderness, as in respect to size, nonconforming use, and land ownership patterns;

(iv) Proximity to other designated wilderness, and relative contribution to the National Wilderness Preservation System; and

(v) The anticipated long-term changes in plant and animal species' diversity and in diversity of natural communities of the National Forest and the effects of such changes on the wilderness system.

(4) The forest plan must provide direction for the management of designated wilderness and primitive areas. In particular, it must:

(i) Provide for limiting and distributing visitor use to a level equal to or less than carrying capacity, defined as the maximum level of use that will allow natural processes to operate freely, and that does not impair the values for which wilderness areas were created; and

(ii) Evaluate the extent to which measures against wildfire, insects, and diseases may be desirable for protection of either the wilderness or adjacent areas, and provide for such measures when appropriate.

(h) *Mineral resources.*

§ 219.12 *Research*

(a) Research needs for management of the National Forest System will be identified during the planning process and reviewed subsequently on a continuing basis through evalution of implemented plan. Research needs identified during planning will be forwarded through administrative channels to the office of the Chief, Forest Service, and shall become part of the annual report described in (c) below along with a description of the active and proposed research program addressing these needs.

(b) Particular attention will be given to the results of the monitoring and evaluation efforts conducted under § 219.10(j). If these efforts identify management systems or practices that are not successfully meeting stated objectives, or are resulting in substantial and permanent impairment of the productivity of the land, as a result inadequate information or technology, the research needs identified will be immediately forwarded to the Chief, Forest Service, for subsequent action by the management of Forest Service research activities.

Identified needs will be included in formulating overall programs involving research needs on other public lands and on industrial and nonindustrial private lands. The research priorities for management of the National Forest System will be established and budgeted at the research station and national levels based on input of the National Forest System at all planning levels with due consideration to problems and opportunities identified in (a) above and through the results of the monitoring and evaluation process described in § 219.10(j).

(c) An annual report at the national level will include, but not be limited to, a description of the status of major research program, significant findings, and how this information is to be applied in National Forest System management.

§ 219.13 *Revision of regulations.*

These regulations shall be subjected to regular review and, when appropriate, revision. Such review and revision may occur whenever it is deemed necessary, but the first such review shall be completed no later than 6 years after the approval date of these regulations. Additional reviews shall occur at least every 5 years thereafter. The Secretary shall consider the use of a Committee of Scientists to assist in this review and revision. It shall operate in the manner provided in section 6(h) of The National Forest Management Act of 1976. The process of revision shall take place with full opportunity for public participation. Such public participation shall be generally similar to that required in these regulations for regional planning (§ 219.8).

§ 219.14 *Transition period.*

Until such time as an area of National Forest Ssytem land is managed under a forest plan approved by the Regional Forester, such areas of land may continue to be managed under existing land-use and resource plans. As soon as practicable, exisiting plans will be amended or revised to incorporate standards and guidelines in this subject. Pending approval of a forest plan, existing plans may be amended or revised to include management requirements not inconsistent with the provisions of the Forest and Rangeland Renewable Resources Planning Act, as amended, and these regulations.

[FR Doc. 79-13863 Filed 5-3-79; 8:45 am]

BILLING CODE 3410-11-M